North Mississippi Refuges Complex Annual Narrative, 2012

North Mississippi Refuges Complex

Coldwater River National Wildlife Refuge
Dahomey National Wildlife Refuge
Tallahatchie National Wildlife Refuge

Annual Narrative
Grenada, Mississippi

Calendar Year 2012

2/13/13
Project Leader — Date
Stephen Gard

3/5/13
Refuge Supervisor, Area II — Date
Elizabeth Souheaver

3/5/2013
For Regional Chief, NWRS, Southeast Region — Date
David Viker

"The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

National Wildlife Refuge System Improvement Act of 1997

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Introduction

The North Mississippi Refuges Complex (NMRC) was established in Grenada, Mississippi in 1989, primarily to manage the increased land base acquired through the transfer of properties to the U.S. Fish and Wildlife Service (Service) by the Farmers Home Administration (FmHA), now the Farm Service Agency (FSA), and the acquisition of Coldwater River, Dahomey, and Tallahatchie National Wildlife Refuges (NWR). At that time, there were no other stations in an appropriate geographical location to manage these lands. After several management decisions and boundary changes, NMRC's final geographical boundaries contained 26 counties in northern Mississippi. NMRC is divided into three work areas. Each work area is comprised of one refuge and all FSA properties within that area (figure 1).

Farm Service Agency lands are properties that the U.S. Department of Agriculture (USDA) foreclosed on, or the owner voluntarily deeded his land back to the USDA due to lack of payment on loans. The original owner was given the right to buy back the land, but Executive Order 11990 required the wetlands on these properties to be set aside or protected. Most of the properties that the original owners did not buy back were transferred in fee title to the Service. Other such properties were purchased by the original owner, but were subject to restrictive USDA easements. Easement management responsibilities of these properties were transferred to the Service and are considered units of the National Wildlife Refuge System. Farm Service Agency lands range from 1 acre to over 1,200 acres in size and are categorized as follows:

1. Fee Title Properties: These properties are now considered public land and are managed as units of the National Wildlife Refuge System.

2. Conservation Easements: The ownership of these properties remains in the private sector, but the Service retains most management rights. For example, these lands can no longer be farmed and the Service is allowed to mow, install water control structures, build levees, burn, plant seedlings or acorns, and manage water levels.

3. Floodplain Easements: The less restrictive of the two easements, the ownership remains in the private sector, with restrictions that prohibit degradation of the existing floodplain values. The land owner is usually allowed to farm acreage that was previously in cultivation, but the easement prevents further draining or clearing of the land. These easements often contain smaller, more restrictive conservation easements within their boundaries.

In 1989, there were four recorded easements for a total land base of 1,070 acres. As of 2009, NMRC manages three traditional refuges totaling 16,592 acres, 48 FSA Fee Title tracts totaling 10,684 acres, 57 Conservation Easements totaling 4,330 acres, and 22 Floodplain easements totaling 2,220 acres (Figure 2 and Table 1).

Wood duck drake (L. Pace/Friends of Dahomey NWR)

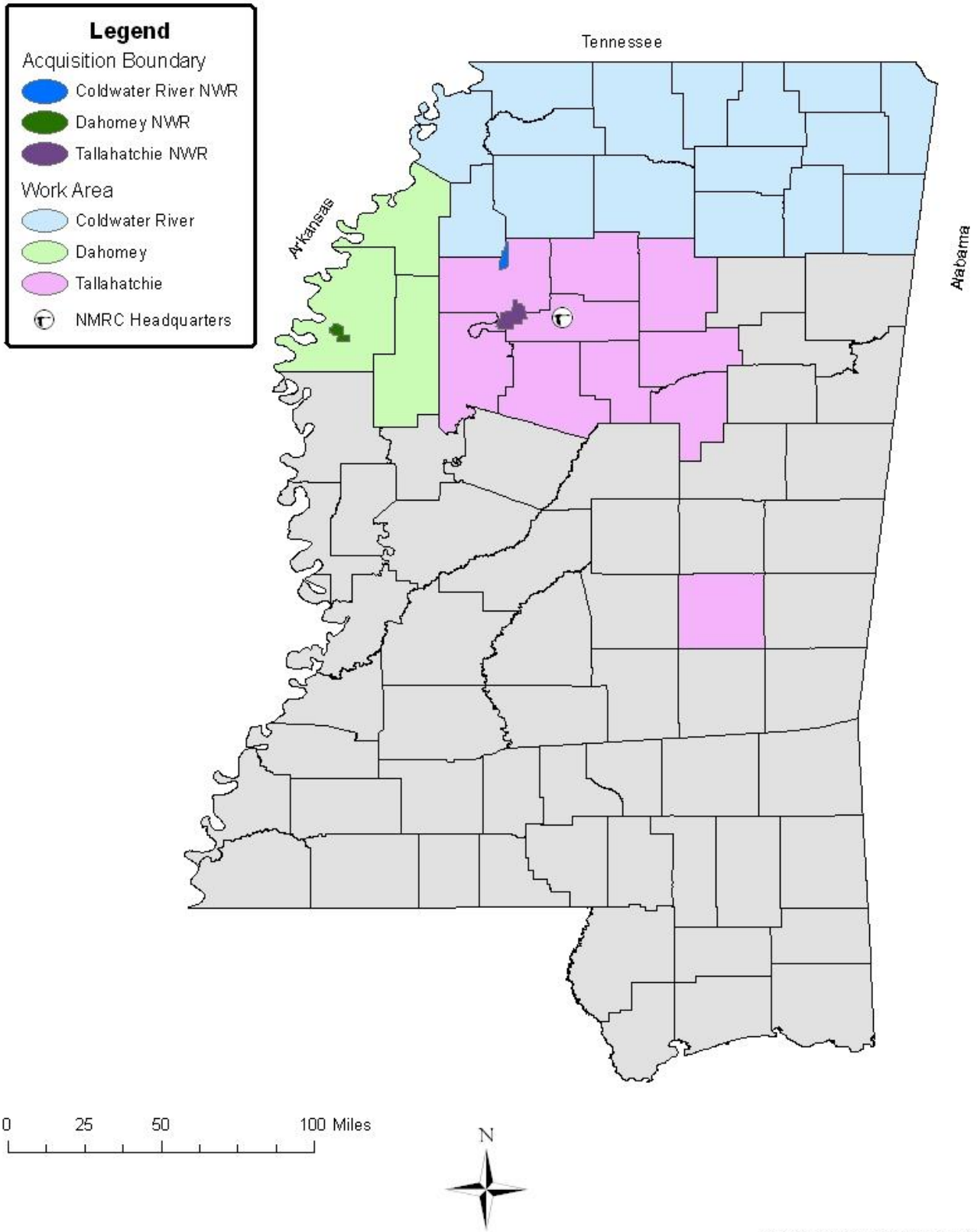


Figure 1: The NMRC work area

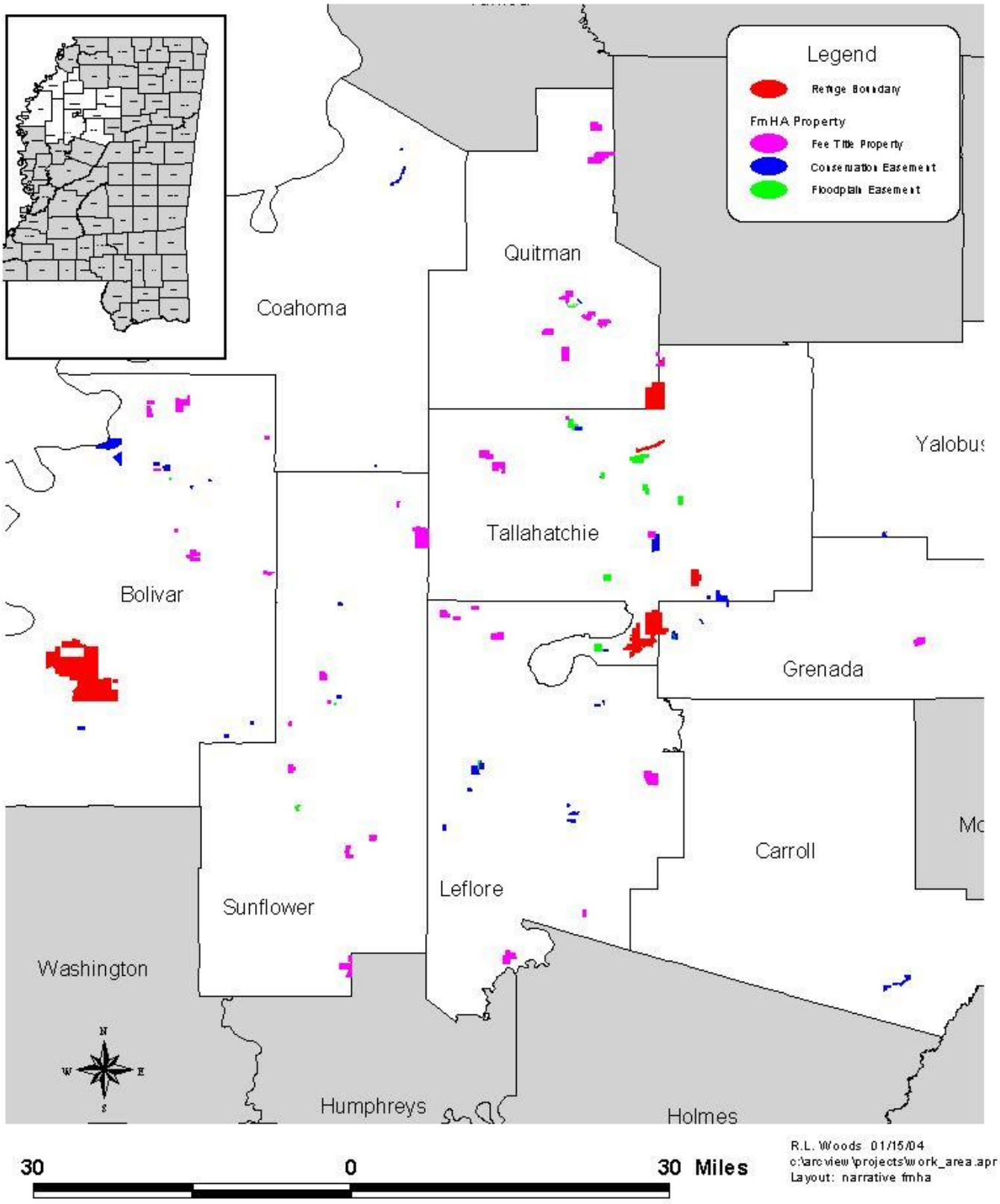


Figure 2: The nine counties containing most of the properties administered by NMRC.

Table 1: Properties managed by NMRC.

REFUGE PROPERTIES								
NAME	**COUNTY**	**ACRES**	**ESTATE**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**YEAR ACQUIRED**	**LAT/LON**
Dahomey NWR								
Allen Gray Estate/TNC	BOLIVAR	9,269	Fee Title	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 17, 19, 22 & 27-34; T21N R7W SEC. 1-4 & 9-12	1993	33°42'N 90°55'W
MS Dept of Trans. (DOT)	BOLIVAR	162	Fee Title	CHOCTAW	LOBDELL	T22N R7W SEC. 34	1991	33°42'N 90°54'W
West Bolívar Co. School Board	BOLIVAR	260	Lease	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 16	N/A	33°45'N 90°09'W
DAHOMEY NWR	**TOTAL ACRES**	**9,691**						
TALLAHATCHIE NWR								
Walker Tract	TALLAHATCHIE	557	Fee Title	PHILIPP	CASCILLA	T23N R2E SEC. 21, 22 & 28	1991	30°50'N 90°05'W
John Whitten	GRENADA, TALLAHATCHIE	509	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC.13 & 24; T22N R2E SEC. 18	1992	33°45'N 90°08'W
John Hancock	GRENADA, TALLAHATCHIE	1,361	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 1, 12 & 13; T22N R2E SEC. 7 & 18	1992	33°47'N 90°08'W
Chicago Mills/DOT	TALLAHATCHIE	1,656	Fee Title	GREENWOOD, PHILIPP	MONEY, PHILIPP	T22N R1E SEC. 14, 22-27 & 34	1997	33°45'N 90°09'W
Sayle Tract	TALLAHATCHIE	116	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 24	2003	33°45'N 90°08'W
TALLAHATCHIE NWR	**TOTAL ACRES**	**4,199**						
COLDWATER RIVER NWR								
Travelers Insurance	QUITMAN, TALLAHATCHIE	1,730	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 30 & 31; T26N R1E SEC. 25 & 36	1991	34°5'N 90°08'W
Shiele Tract	TALLAHATCHIE	40	Fee Title	CROWDER	CROWDER	T26N R2E SEC. 7	1996	34°8'N 90°08'W
Duck Ponds Inc.	QUITMAN, TALLAHATCHIE	298	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 19; T26N R1E SEC. 24	1996	34°6'N 90°08'W
Warwick Tract	TALLAHATCHIE	306	Fee Title	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 23 & 24; T25N R2E SEC. 18 & 19	2001	
COLDWATER RIVER NWR	**TOTAL ACRES**	**2,374**						

FmHA FEE TITLE PROPERTIES								
NAME	**COUNTY**	**ACRES**	**Tract #**	**15' QUAD**	**7.5' QUAD**	**LEGAL DESCRIPTION**	**DATE ACQUIRED**	**LAT/LON**
CARMICLE	BOLIVAR	40	14.00	PACE	SHELBY	T24N R6W SEC. 26	07/26/91	33°54'N 90°47'W
GOSS	BOLIVAR	543	17.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 35 & 36; T25N R6W SEC. 2	07/14/94	34°05'N 90°47'W
HESTER, T. III	BOLIVAR	389	13.00	PACE	PACE	T23N R6W SEC. 1	07/26/91	33°52'N 90°46'W
HOLCOMB, D.	BOLIVAR	40	12.00	CLARKSDALE	DUNCAN	T25N R5W SEC. 13	07/26/91	34°02'N 90°40'W
RAY	BOLIVAR	50	18.00	PACE	SHELBY	T25N R6W SEC. 33	09/27/94	33°59'N 90°49'W
RILEY	BOLIVAR	100	11.00	MOUND BAYOU	MERIGOLD	T23N R5W SEC. 13	07/26/91	33°50'N 90°40'W
WATTS, J.	BOLIVAR	214	16.00	MELLWOOD	ROUND LAKE	T25N R6W SEC. 4	07/31/92	34°04'N 90°50'W
WATTS, J.	BOLIVAR	81	16.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 33	07/31/92	34°04'N 90°49'W
GILLON	GRENADA	245	11.00	GRENADA	GRENADA	T22N R5E SEC. 21	07/14/93	33°45'N 89°46'W
GWIN	LEFLORE	343	16.00	SUMNER	GLENDORA	T22N R2W SEC. 13 & 24	02/19/92	33°45'N 90°21'W
HENSON	LEFLORE	165	19.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	07/15/92	33°19'N 90°20'W
HENSON / A.C.O.E.	LEFLORE	275	no	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	?	33°19'N 90°20'W
KIMBROUGH, A.M.	LEFLORE	40	18.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 18	04/18/92	33°19'N 90°20'W
MILLICAN, H.	LEFLORE	2	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 30	03/05/92	33°23'N 90°14'W
MILLICAN, H.	LEFLORE	76	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 31	03/05/92	33°23'N 90°14'W
ROBERTSON	LEFLORE	655	14.00	GREENWOOD	GREENWOOD	T20N R1E SEC. 24 & 25	10/02/90	33°34'N 90°08'W
SCOTT	LEFLORE	226	20.00	SUMNER	BROOKS	T22N R2W SEC. 8	09/01/94	33°47'N 90°25'W
SCOTT	LEFLORE	80	20.00	SUMNER	BROOKS	T22N R2W SEC. 3	09/01/94	33°48'N 90°23'W
SCOTT	LEFLORE	90	20.00	SUMNER	BROOKS	T22N R2W SEC. 9	09/01/94	33°47'N 90°24'W
SMITH, E.	MARSHALL	232	10.00	POTTS CAMP	MALONE	T5S R2W SEC. 28 & 29		34°37'N 89°25'W
WHALEY	MARSHALL	437	11.00	POTTS CAMP	BETHLEHEM	T6S R1W SEC. 6 & 7; T6S R2W SEC.1		34°35'N 89°21'W
BUTLER	QUITMAN	245		TUTWILER	LAMBERT	T27N R1W SEC. 11, 12 & 14	04/01/99	34°13'N 90°15'W
SAVAGE, E.	QUITMAN	59	10.00	TUTWILER	LAMBERT	T27N R1W SEC. 11	11/06/90	34°13'N 90°16'W
SAVAGE, P.	QUITMAN	40	13.00	CROWDER	CROWDER	T26N R1E SEC. 1	09/01/93	34°08'N 90°08'W
SAVAGE, P.	QUITMAN	20	13.00	CROWDER	CROWDER	T26N R1E SEC. 12	09/01/93	34°07'N 90°08'W
STARR, R.	QUITMAN	750	12.00	SLEDGE	CRENSHAW SOUTH	T8S R10W SEC. 1 & 2	06/02/91	34°25'N 90°13'W
STARR, R.	QUITMAN	320	12.00	SLEDGE	CRENSHAW SOUTH	T7S R10W SEC. 23	06/02/91	34°27'N 90°13'W
TRAINOR / BOYD	QUITMAN	382	11.00	TUTWILER	LAMBERT	T26N R1W SEC. 2 & 11	11/06/90	34°09'N 90°15'W
TRAINOR / BOYD	QUITMAN	219	11.00	CROWDER	CROWDER	T27N R1E SEC. 19& 20	11/06/90	34°12'N 90°14'W
TRAINOR / BOYD	QUITMAN	188	11.00	CROWDER	CROWDER	T27N R1E SEC. 20, 21 & 29	11/06/90	34°11'N 90°12'W
TRAINOR / BOYD	QUITMAN	228	11.00	TUTWILER	LAMBERT	T27N R1W SEC. 27	11/06/90	34°10'N 90°17'W
BOWLING	SUNFLOWER	170	14.00	BAIRD	MOOREHEAD	T19N R3W SEC. 29	12/06/91	33°29'N 90°31'W
LINDSEY, L.	SUNFLOWER	160	13.00	CLEVELAND	BOYER	T20N R4W SEC. 17	07/26/91	33°34'N 90°38'W
LINDSEY, L.	SUNFLOWER	40	13.00	CLEVELAND	RULEVILLE	T21N R4W SEC. 14	07/26/91	33°40'N 90°35'W
LINDSEY, L.	SUNFLOWER	204	13.00	CLEVELAND	RULEVILLE	T22N R4W SEC. 3	07/26/91	33°42'N 90°35'W
POVALL / KITCHENS	SUNFLOWER	180	11.00	BAIRD	MOOREHEAD	T19N R4W SEC. 25	11/06/90	33°27'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	422	11.00	BAIRD	INVERNESS	T17N R4W SEC. 24 & 25	11/06/90	33°18'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	80	11.00	BAIRD	INVERNESS	T17N R4W SEC. 13 & 18	11/06/90	33°19'N 90°33'W
WALKER	SUNFLOWER	42	10.00	CLEVELAND	CLEVELAND	T21N R4W SEC. 29	10/02/90	33°38'N 90°38'W
PATTERSON / WHITTEN	SUNFLOWER	46	15.00	SUMNER	ROME	T24N R3W SEC. 15 & 22	09/01/94	33°56'N 90°29'W
WILKINS	SUNFLOWER	1,204	12.00	SUMNER	ROME	T24N R3W SEC. 35 & 36; T23N R3W SEC. 1	05/02/91	33°54'N 90°22'W
CASTLEBERRY	TALLAHATCHIE	94	12.00	CROWDER	CROWDER	T26N R2E SEC. 7	11/01/93	34°07'N 90°07'W
JAMES	TALLAHATCHIE	160	10.00	PHILLIP	TIPPO	T24N R1E SEC. 36	10/11/90	33°54'N 90°08'W
PENNINGTON	TALLAHATCHIE	470	17.00	SUMNER	WEBB & VANCE	T25N R2W SEC.36		33°59'N 90°21'W
PENNINGTON	TALLAHATCHIE	360	17.00	TUTWILER	TUTWILER & VANCE	T25N R2W SEC. 26		34°00'N 90°22'W
PENNINGTON	TALLAHATCHIE	40	17.00	TUTWILER	VANCE	T25N R1W SEC. 2		34°03'N 90°15'W
FOOSHEE / SMITH	UNION	104	10.00	NEW ALBANY	NEW ALBANY WEST	T7S R2E SEC. 32 & 33	07/22/94	34°26'N 89°06'W
FOOSHEE / SMITH	UNION	134	10.00	NEW ALBANY	ETTA, NEW ALBANY WEST	T7S R2E SEC. 31 & 32	07/22/94	34°26'N 89°07'W
48 FEE TITLE PROPERTIES IN 8 COUNTIES		**10,684**	**ACRES**					

FmHA CONSERVATION EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
BELL / CRAB	ALCORN	40	10C	WALNUT	CHALYBEATE	T2S R5E SEC. 29	11/25/91	34°53'N 88°47'W
TURNER / TALLEY	ALCORN	8	11C	CORINTH	KUSSUTH NORTH	T1S R6E SEC. 35	02/22/95	34°57'N 88°37'W
BALDUCCI	BOLIVAR	12	19C	MOUND BAYOU	MOUND BAYOU	T24N R5W SEC. 6	10/13/95	33°58'N 90°45'W
BALDUCCI	BOLIVAR	12	19C	PACE	SHELBY	T24N R6W SEC. 1	10/13/95	33°58'N 90°46'W
BASS, B.H.	BOLIVAR	69	15C	PACE	SHELBY	T25N R6W SEC. 33	04/21/92	33°59'N 90°49'W
BASS, B.H.	BOLIVAR	277	15C	MELLWOOD	LACONIA, ROUND LAKE & SHELBY	T25N R7W SEC. 25 & 36	04/21/92	34°00'N 90°52'W
BASS, B.H.	BOLIVAR	723	15C	MELLWOOD	LACONIA & ROUND LAKE	T25N R7W SEC. 23 & 24	04/21/92	34°01'N 90°52'W
CLIFTON, R.	BOLIVAR	97	10C	CHOCTAW	LOBDELL	T21N R7W SEC. 28	12/18/89	33°08'N 90°55'W
HESTER, T. JR.	BOLIVAR	55		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
HESTER, T. JR.	BOLIVAR	35		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 26		33°47 'N 90°43'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 33		33°38'N 90°41'W
CALHOUN / DANCE	CARROLL	149	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31 & 32		33°17'N 89°47'W
CALHOUN / DANCE	CARROLL	57	10C	COILA	PEACHAHALA CREEK	T16N R5E SEC. 6		33°16'N 89°49'W
CALHOUN / DANCE	CARROLL	16	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31		33°17'N 89°48'W
ALLEN	COAHOMA	4	11C	MARKS	LULA	T30N R3W SEC. 34		34°25'N 90°29'W
ALLEN	COAHOMA	52	11C	MARKS	LULA	T29N R3W SEC. 10 & 15		34°22'N 90°29'W
ALLEN	COAHOMA	31	11C	MARKS	LULA	T29N R3W SEC. 10 & 11		34°23'N 90°29'W
ALLEN	COAHOMA	30	11C	MARKS, FARRELL	LULA	T29N R3W SEC. 15		34°22'N 90°30'W
SAFLEY / BRADY	COAHOMA	13	10C	MOUND BAYOU	BALTZER	T25N R3W SEC. 32	02/26/90	33°59'N 90°31'W
STATEN	GRENADA	74	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20		33°45'N 90°06'W
HARRIS, W.L.	GRENADA	18	10C	PHILIPP	CASCILLA	T22N R2E SEC. 10		33°46'N 90°04'W
MOOR, R.B.	LEFLORE	11	15C	GREENWOOD	GREENWOOD	T19N R1W SEC. 12	11/29/90	33°31'N 90°14'W
MOOR, R.B.	LEFLORE	77	15C	GREENWOOD & SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31 'N 90°15'W
MOOR, R.B.	LEFLORE	17	15C	SCHLATER	SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31'N 90°15'W
MOOR, R.B.	LEFLORE	58	15C	SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 13	11/29/90	33°30'N 90°15'W
TRIBBLE	LEFLORE	12		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°12'W
TRIBBLE	LEFLORE	28		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°13'W
HAWKINS	LEFLORE	33	12C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 34	09/20/90	33°33'N 90°23'W
KOLLE, R	LEFLORE	109	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°35'N 90°22'W
UPCHURCH / PRESTRIDGE	LEFLORE	250	11C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 22, 26 & 27	10/01/90	33°34'N 90°23'W
SAUNDERS	LEFLORE	15	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
SAUNDERS	LEFLORE	45	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
TRAINOR, E. L.	QUITMAN	6	16C	CROWDER	CROWDER	T27N R1W SEC. 12 & 13	01/01/98	34°13'N 90°14'W
MOSES	SUNFLOWER	25			DREW	T22N R4W SEC. 1		
POWELL	SUNFLOWER	40	16C	CLEVELAND	RULEVILLE	T21N R4W SEC. 11		33°40'N 90°34'W
DAVIS, HIRAM	TALLAHATCHIE	17	13C	PHILIPP	MONEY	T22N R1E SEC. 29	02/15/90	33°44'N 90°12'W
DENMAN	TALLAHATCHIE	8	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°59'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
HARRIS, W.L.	TALLA.,GRENA.	389	10C	PHILIPP	CASCILLA	T23N R2E SEC. 35 & 36; T22N R2E SEC. 1	04/28/89	33°48'N 90°03'W
HARRIS, W.L.	TALLAHATCHIE	40	10C	PHILIPP	CASCILLA	T23N R2E SEC. 34	04/28/89	33°48'N 90°04'W
MABUS	TALLAHATCHIE	42	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 26 & 27		34°00'N 90°10'W
MABUS	TALLAHATCHIE	416	16C	PHILLIP	PHILIPP & TIPPO	T24N R1E SEC. 36; T23N R1E SEC. 1 & 12		33°53'N 90°08'W
MABUS	TALLAHATCHIE	7	16C	PHILLIP	PHILIPP	T23N R1E SEC. 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	81	11C	CROWDER & TUTWILER	CROWDER	T25N R1W SEC. 12	11/02/90	34°02'N 90°14'W
MILAM	TALLAHATCHIE	3		PHILIPP	TIPPO	T24N R1E SEC. 11	10/22/98	33°57'N 90°09'W
MILAM	TALLAHATCHIE	40		PHILIPP	TIPPO	T24N R1E SEC. 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	35	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°57'N 90°06'W
BENSON	UNION	76		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	1		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 20 & 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	26		NEW ALBANY	ETTA	T7S R1E SEC. 17& 20	07/01/99	34°28'N 89°13'W
BENSON	UNION	6		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
HARRIS, W.L.	WEBS., CHOC.	515	10C	not available	EUPORA & SAPA	T19N R10E SEC. 9, 10 & 15	04/28/89	33°31'N 89°14'W
HOLLAND / BOONE	YALOBUSHA	37		GRENADA	SCOBEY	T25N R4E SEC.36		33°59'N 89°49'W
57 CONSERV. EASEMENTS IN 13 COUNTIES		**4,330 ACRES**						

FmHA FLOODPLAIN EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
DAVIS, ROBERT	ALCORN	60		CORINTH	KOSSUTH NORTH	T2N R5E SEC. 25 & 26	10/6/1992	
HESTER, T. JR.	BOLIVAR	4		PACE	SHELBY	T24N R6W SEC. 3		33°59'N 90°48'W
STATEN	GRENADA	190	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20	07/14/95	33°45'N 90°06'W
KOLLEE, R	LEFLORE	191	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°53'N 90°22'W
McCLATCHY	MARSHALL	124	12C	TYRO	MARIANNA	T4S R3W SEC. 22		34°43'N 89°30'W
TRAINOR, E. L.	QUITMAN	3		TUTWILER	LAMBERT	T27N R1W SEC. 13 & 14	01/01/98	34°12'N 90°15'W
TRAINOR, E. L.	QUITMAN	16		CROWDER & TUTWILER	CROWDER & LAMBERT	T27N R1W SEC. 13	01/01/98	34°12'N 90°15'W
POWELL	SUNFLOWER	1		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		
POWELL	SUNFLOWER	7		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		33°40'N 90°34'W
POWELL	SUNFLOWER	21		CLEVELAND	BOYER & SUNFLOWER	T20N R4W SEC. 32		33°31'N 90°37'W
POWELL	SUNFLOWER	24		CLEVELAND	BOYER	T19N R4W SEC. 5		33°31'N 90°37'W
DAVIS, HIRAM	TALLAHATCHIE	240	13C	PHILIPP	MONEY	T22N R1E SEC. 29		33°44'N 90°13'W
DENMAN	TALLAHATCHIE	77	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
MABUS	TALLAHATCHIE	429	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 25 & 26		34°00'N 90°09'W
MABUS	TALLAHATCHIE	168	16C	PHILIPP	PHILIPP	T23N R1E SEC. 20 & 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	217	11C	CROWDER & TUTWILER	CROWDER & VANCE	T25N R1W SEC. 12	11/02/90	34°03'N 90°15'W
MILAM	TALLAHATCHIE	160		PHILIPP	TIPPO	T24N R1E SEC. 11 & 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	160	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°56'N 90°06'W
BENSON	UNION	43		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 20	07/01/99	34°27'N 89°13'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°28'N 89°13'W
BENSON	UNION	13		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
22 FLOODPLAIN EASEMENTS IN 9 COUNTIES		**2,220 ACRES**						

Coldwater River NWR

Coldwater River National Wildlife Refuge, formerly the Black Bayou Unit of the Tallahatchie National Wildlife Refuge, was originally established in 1991 under the Migratory Bird Conservation Act and the Consolidated Farm and Rural Development Act. Under these Acts, the refuge purpose is "for use as inviolate sanctuary, or for any other management purpose, for migratory birds" and for conservation purposes. Specifically, the draft Environmental Assessment and Land Protection Plan state the refuge was proposed "…to preserve and manage wintering habitat for Canada geese, mallard, pintail, blue-winged teal, and wood duck and production habitat for wood duck…" in accordance with the goals in the North American Waterfowl Management Plan. It received designation as a "stand alone" refuge in 2001. The work area for Coldwater River NWR covers 16 counties and includes Coldwater River NWR (2,694 acres), 15 FSA Fee-title properties (3,452 acres), 9 Conservation Easements (165 acres), and 8 Floodplain Easements (331 acres) (Table 2).

Location

Coldwater River NWR is located in the delta region of Mississippi in Quitman and Tallahatchie Counties, approximately 6 miles northwest of Charleston, Mississippi (Figure 3). The refuge is approximately 45 minutes from the Grenada Headquarters office, where staff is located. The refuge lies between the Panola-Quitman Floodway, a channelized route for the Tallahatchie River, and the Old Tallahatchie River. During most winters, water will back up from the confluence of the two waterways and back flow onto the refuge.

Historic Condition

Coldwater River NWR is located within the Mississippi Alluvial Valley in the Yazoo River drainage basin, a portion of the historic floodplain of the Mississippi River. The closest major water body is the Tallahatchie River, less than 3 miles west of the refuge. Historically, the area would have been subject to seasonal flooding, as the Tallahatchie River over-topped its banks and spread into the surrounding floodplain. This seasonal flooding replenished nutrients in the bottomland area and allowed the formation of a bottomland hardwood forest, probably dominated by oaks, sweet gum, and sugarberry. The lower areas were likely flooded most of the year and would have been dominated by cypress and tupelo. In dry years, these areas would have likely supported annual grasses and sedges, which would provide additional seeds for waterfowl in the winter.

Soils in this area reflect the hydrological history of the area, consisting primarily of Waverly-Calhoun and Pearson-Brittain-Waverly Associations. In general, these are poorly drained acidic soils that are generally too wet in the winter and spring to be suitable for residential and industrial development. They were formed, at least in part, from silty alluvium deposited by the Tallahatchie River. This area is also characterized by a high water table, further slowing drainage in the spring. This is supported by the presence of several artesian wells scattered across the property.

Table 2: Properties managed by Coldwater River National Wildlife Refuge.

REFUGE PROPERTIES								
NAME	COUNTY	ACRES	ESTATE	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	YEAR ACQUIRED	LAT/LON
Travelers Insurance	QUITMAN, TALLAHATCHIE	1,730	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 30 & 31; T26N R1E SEC. 25 & 36	1991	34°5'N 90°08'W
Shiele Tract	TALLAHATCHIE	40	Fee Title	CROWDER	CROWDER	T26N R2E SEC. 7	1996	34°8'N 90°08'W
Warwick Tract	TALLAHATCHIE	306	Fee Title	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 23 & 24 T25 R2E SEC. 18 & 19	2001	
Duck Ponds Inc.	QUITMAN, TALLAHATCHIE	298	Fee Title	CROWDER	FISH HOOK LAKE	T26N R2E SEC. 19; T26N R1E SEC. 24	1996	34°6'N 90°08'W
Crowder Partners	QUITMAN	328	Fee Title	CROWDER	FISH HOOK LAKE	T26N R1E SEC 13 & 24	2007	
COLDWATER RIVER NWR	**TOTAL ACRES**	**2,702**						

FmHA FEE TITLE PROPERTIES								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
SMITH, E.	MARSHALL	232	10.00	POTTS CAMP	MALONE	T5S R2W SEC. 28 & 29		34°37'N 89°25'W
WHALEY	MARSHALL	437	11.00	POTTS CAMP	BETHLEHEM	T6S R1W SEC. 6 & 7; T6S R2W SEC.1		34°35'N 89°21'W
CASTLEBERRY	TALLAHATCHIE	94	12.00	CROWDER	CROWDER	T26N R2E SEC. 7	11/01/93	34°07'N 90°07'W
BUTLER	QUITMAN	245		TUTWILER	LAMBERT	T27N R1W SEC. 11, 12 & 14	04/01/99	34°13'N 90°15'W
SAVAGE, E.	QUITMAN	59	10.00	TUTWILER	LAMBERT	T27N R1W SEC. 11	11/06/90	34°13'N 90°16'W
SAVAGE, P.	QUITMAN	40	13.00	CROWDER	CROWDER	T26N R1E SEC. 1	09/01/93	34°08'N 90°08'W
SAVAGE, P.	QUITMAN	20	13.00	CROWDER	CROWDER	T26N R1E SEC. 12	09/01/93	34°07'N 90°08'W
STARR, R.	QUITMAN	750	12.00	SLEDGE	CRENSHAW SOUTH	T8S R10W SEC. 1 & 2	06/02/91	34°25'N 90°13'W
STARR, R.	QUITMAN	320	12.00	SLEDGE	CRENSHAW SOUTH	T7S R10W SEC. 23	06/02/91	34°27'N 90°13'W
TRAINOR / BOYD	QUITMAN	382	11.00	TUTWILER	LAMBERT	T26N R1W SEC. 2 & 11	11/06/90	34°09'N 90°15'W
TRAINOR / BOYD	QUITMAN	219	11.00	CROWDER	CROWDER	T27N R1E SEC. 19& 20	11/06/90	34°12'N 90°14'W
TRAINOR / BOYD	QUITMAN	188	11.00	CROWDER	CROWDER	T27N R1E SEC. 20, 21 & 29	11/06/90	34°11'N 90°12'W
TRAINOR / BOYD	QUITMAN	228	11.00	TUTWILER	LAMBERT	T27N R1W SEC. 27	11/06/90	34°10'N 90°17'W
FOOSHEE / SMITH	UNION	104	10.00	NEW ALBANY	NEW ALBANY WEST	T7S R2E SEC. 32 & 33	07/22/94	34°26'N 89°06'W
FOOSHEE / SMITH	UNION	134	10.00	NEW ALBANY	ETTA, NEW ALBANY WEST	T7S R2E SEC. 31 & 32	07/22/94	34°26'N 89°07'W
15 FEE TITLE PROPERTIES IN 4 COUNTIES		**3,452**	**ACRES**					

FmHA CONSERVATION EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
BELL / CRAB	ALCORN	40	10C	WALNUT	CHALYBEATE	T2S R5E SEC. 29	11/25/91	34°53'N 88°47'W
TURNER / TALLEY	ALCORN	8	11C	CORINTH	KUSSUTH NORTH	T1S R6E SEC. 35	02/22/95	34°57'N 88°37'W
TRAINOR, E. L.	QUITMAN	6	16C	CROWDER	CROWDER	T27N R1W SEC. 12 & 13	01/01/98	34°13'N 90°14'W
BENSON	UNION	76		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	1		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 20 & 21	07/01/99	34°27'N 89°12'W
BENSON	UNION	26		NEW ALBANY	ETTA	T7S R1E SEC. 17& 20	07/01/99	34°28'N 89°13'W
BENSON	UNION	6		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	2		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
9 CONSERV. EASEMENTS IN 3 COUNTIES		**165**	**ACRES**					

FmHA FLOODPLAIN EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
DAVIS, ROBERT	ALCORN	60		CORINTH	KOSSUTH NORTH	T2S R5E SEC. 25 & 26	10/6/1992	
McCLATCHY	MARSHALL	124	12C	TYRO	MARIANNA	T4S R3W SEC. 22		34°43'N 89°30'W
TRAINOR, E. L.	QUITMAN	3		TUTWILER	LAMBERT	T27N R1W SEC. 13 & 14	01/01/98	34°12'N 90°15'W
TRAINOR, E. L.	QUITMAN	16		CROWDER & TUTWILER	CROWDER & LAMBERT	T27N R1W SEC. 13	01/01/98	34°12'N 90°15'W
BENSON	UNION	43		NEW ALBANY	ETTA	T7S R1E SEC. 17	07/01/99	34°28'N 89°12'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 20	07/01/99	34°27'N 89°13'W
BENSON	UNION	36		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°28'N 89°13'W
BENSON	UNION	13		NEW ALBANY	ETTA	T7S R1E SEC. 21	07/01/99	34°27'N 89°12'W
8 FLOODPLAIN EASMENTS IN 4 COUNTIES		**331**	**ACRES**					

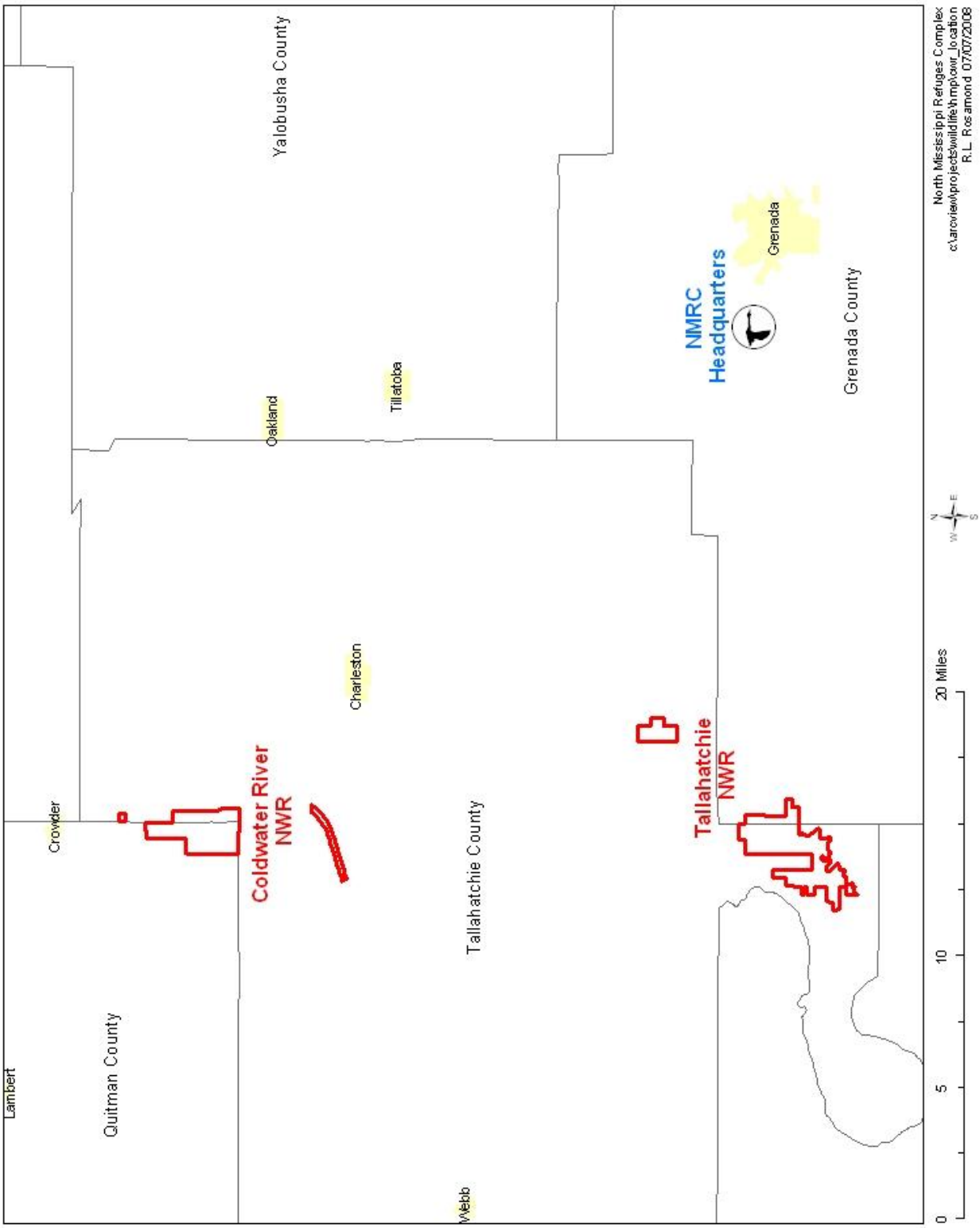


Figure 3: Location of Coldwater River National Wildlife Refuge.

Current Condition

Coldwater River NWR currently consists of 2,694 acres which includes 420 acres of moist soil units, 300 acres of fallow fields, 350 acres of borrow pits, 328 acres of agricultural fields, and over 1,000 acres of reforestation areas (Figure 4). Presently, the bulk of the management occurs on the moist soil units. Units are drained during the spring on a rotational basis to provide a mosaic of habitats. Moist soil vegetation is encouraged and units are reflooded in the fall to provide habitat for waterfowl. Several units are drained during the summer to provide foraging habitat for shorebirds. At the present time, 18 units are actively managed, while the remaining six are passively managed and contain a variety of willow, buttonbush and other perennial plant species.

Wading birds at Coldwater River NWR (B. Rosamond/USFWS)

The 300 acres of fallow fields are strip mowed on a 3-year rotational basis to provide habitat for migratory birds, while no active management occurs on either the borrow pits or the reforestation areas at present. The agricultural area is cooperatively farmed, producing milo, corn, rice, and/or soybeans. Approximately 25% of the acreage is left unharvested each year in accordance with the cooperative farming agreement. This unharvested portion usually consists of corn or milo.

Management Practices from Historic to Current Conditions

Historically, the area was dominated by bottomland hardwood forest, consisting of oaks, sugarberry, sweet gum and hickories, with the sloughs dominated by cypress and tupelo. In the 1908, the Lamb-Fish Lumber Company built a sawmill in Charleston, which was hailed as "the largest hardwood mill in the world," and was equipped with "the most complete and up-to-date" machinery. The mill had an average daily capacity of 150,000 feet of one-inch lumber. Much of the land in the general area was cleared, beginning around this time.

The Panola-Quitman Floodway was constructed in 1924 and is a diversionary canal of the Little Tallahatchie River (Figure 5). It receives discharge from both Sardis and Enid Lakes, two flood control reservoirs built in 1940 and 1952, respectively. Rather than the Little Tallahatchie joining the Coldwater River and forming the Tallahatchie River, the flow is diverted into the Panola-Quitman Floodway. The Floodway joins the Tallahatchie River much further downstream, approximately 13 miles south of the mouth of the Little Tallahatchie River. Levee Road, a large Army Corps of Engineers levee, lies immediately west of the Floodway and north of its confluence with the Tallahatchie River. From late fall, through early spring, water will back flow from the confluence resulting in sheet water covering the land between the Tallahatchie River and Levee Road.

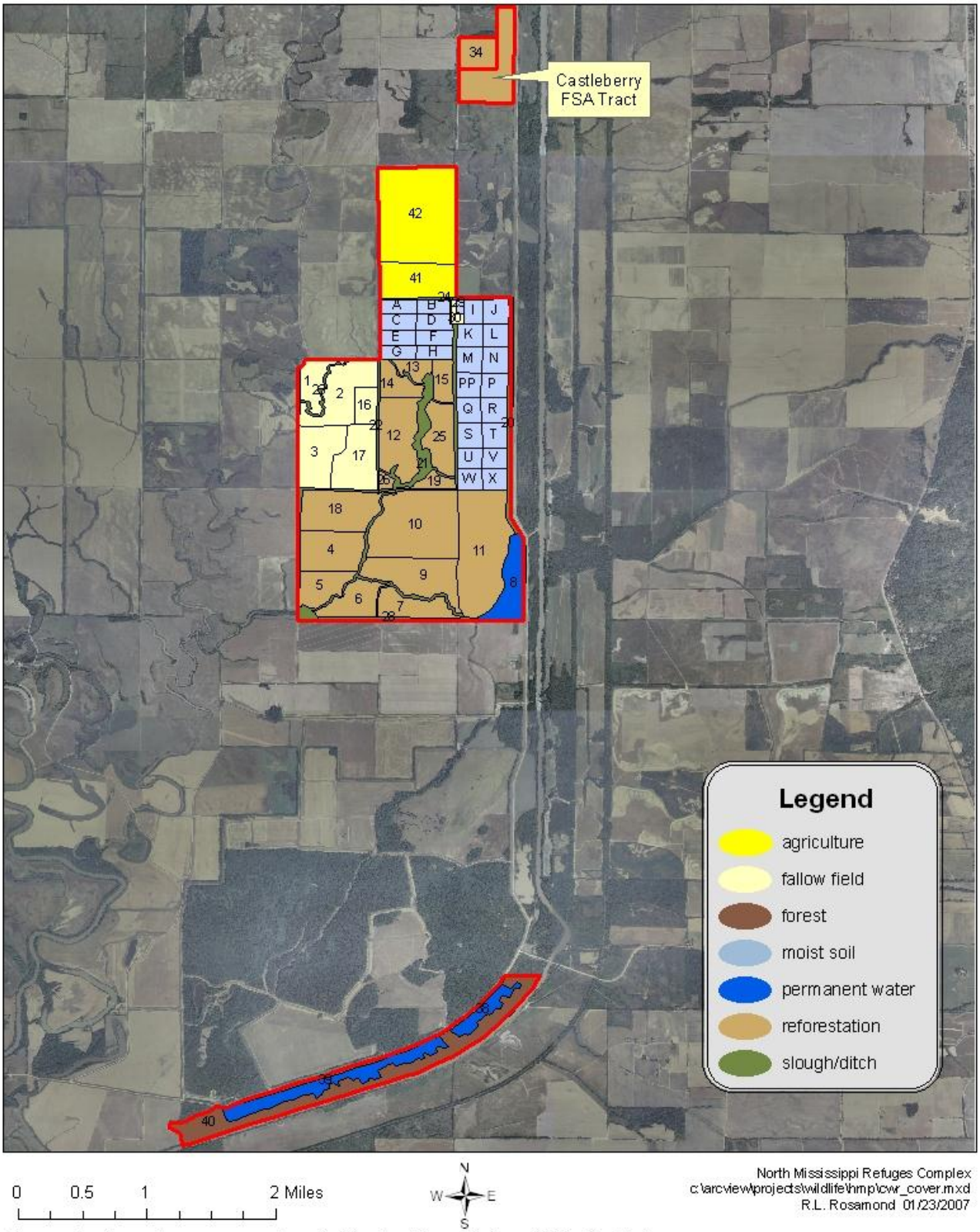


Figure 4: Cover types present on Coldwater River National Wildlife Refuge.

Coldwater River NWR and the area to the south, remained mostly forested until the soybean boom of the mid-1970's, probably due largely to the fact the area was low-lying and extremely prone to flooding. Southern landowners began constructing private levees to protect their agricultural lands from severe flooding. This exacerbated conditions for landowners to the north, who were then forced to construct their own levees, compounding the problem.

The land currently known as Coldwater River NWR was cleared prior to 1978 when it was sold to The Travelers Insurance Company, Inc. Travelers leased the land to local farmers. Twenty-four ponds were constructed in 1981, ranging in size from 10 – 21 acres, and in 1990, Alred Fish Farms (later known as Duck Pond Fish Farm) purchased 12 of the ponds. (Portions of two additional ponds were included in the purchase but the property line bisected those ponds and they were not managed for catfish.) In 1991, the U.S. Fish and Wildlife Service purchased approximately 1,730 acres from Travelers Insurance Company for the establishment of Coldwater River NWR. The bulk of this area (approximately 1,550 acres) was agricultural fields currently being leased for farming. In 1994, the Farmers' Home Administration transferred the 94-acre Castleberry Tract to the Service and in 1995, the Service purchased the adjacent 40-acre Schiele Tract. These tracts are located north of the main portion of the refuge. In 1996, the Service purchased the remaining catfish ponds (298 acres) from Duck Pond Fish Farm.

The agricultural lands were gradually taken out of production and reforested beginning in 1992. By 2000, all agricultural lands acquired had been planted with the exception of approximately 300 acres along the northwestern border which was set aside for grassland management.

The Warwick Tract (306 acres) was purchased in 2001. The land consisted of a series of borrow pits and the surrounding forest located between the ACOE levee and the Panola-Quitman Floodway. It had been used primarily for duck hunting and contained several water control structures and duck blinds. However, the levees and structures were somewhat deteriorated and did not effectively provide for water management. Additionally, due to its location, the borrow pits received backflow from the Floodway during periods of high water, causing the water level within the borrow pits to fluctuate by as much as five feet. This further reduced the possibility of effective waterfowl management on these units.

The most recent purchase, 328 acres north of the catfish ponds, was made in 2007. This was agricultural land that had most recently been farmed in soybeans and milo. Much of this acreage is low-lying and subject to flooding.

The refuge provides a juxtaposition of habitats not commonly found in the lower MAV. Coldwater River's mix of habitats and proximity to the migration corridors of the Little Tallahatchie River and the Panola-Quitman Floodway attract a diversity of migrant birds throughout the year. Thirty-four species of shorebirds have been recorded here with fifteen of these commonly seen from March-June and July-October. Peregrine falcons, least terns, black terns, and wood storks occasionally pass through the refuge during migration. Bald eagles are seen regularly in winter with an occasional golden eagle spotted. Other birds such as sedge wren, marsh wren, common yellowthroat, swamp sparrow, sora, and king rail are regularly heard or seen at this refuge. American bittern, least bittern, Lincoln's sparrow, LeConte's sparrow, and Virginia rail are seen less commonly. Mississippi kites, dickcissels, warbling vireos, and blue

grosbeaks can be seen during the summer with hundreds of egrets, ibis, and herons commonlyseen during this time. Species such as snowy egret, little blue heron, black-crowned night heron, yellow-crowned night heron, white ibis and other wading birds use or have used Coldwater River NWR as a roosting location. Least flycatchers were reported as nesting here in 1996 and 1997, making this the only documented nesting location in the state. Beaver, bobcat, coyote and mink are seen on the refuge.

Viceroy butterfly at Coldwater River NWR (B. Rosamond/USFWS).

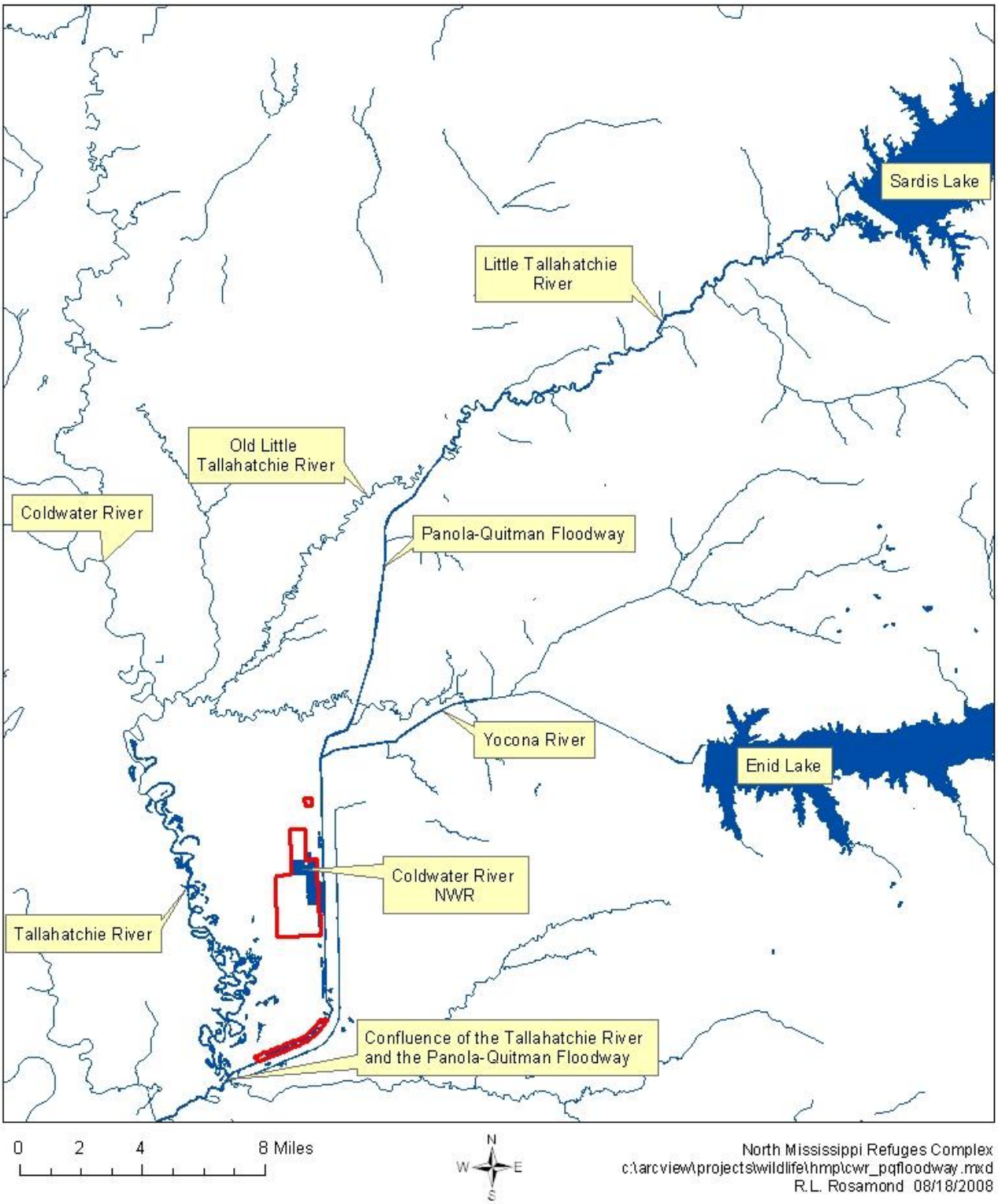


Figure 5: Relationship of the Panola-Quitman Floodway and associated rivers surrounding Coldwater River National Wildlife Refuge.

Dahomey NWR

Dahomey National Wildlife Refuge was established in 1991 under the Migratory Bird Conservation Act and the Emergency Wetlands Resource Act. Under these Acts, the refuge purpose is "for use as inviolate sanctuary, or for any other management purpose, for migratory birds," "for the development, advancement, management, conservation, and protection of fish and wildlife resources" and "for the conservation of the Wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions". Specifically, the Environmental Assessment and Land Protection Plan state the refuge was proposed "…to preserve and manage wintering habitat for mallards, pintails, blue- and green-winged teal, and wood duck". Additional objectives include protection of breeding habitat for wood ducks and "…to provide habitat for migratory game and nongame birds and to provide opportunities for wildlife-oriented recreation and environmental education and interpretation." The work area for Dahomey NWR covers 3 counties and includes Dahomey NWR (9,691 acres), 18 FSA Fee-title properties (4,005 acres), 17 Conservation Easements (1,554 acres), and 5 Floodplain Easements (57 acres) (Table 3).

Location

Dahomey NWR is located in Bolivar County and totals 9,691 acres. The refuge is approximately 10 miles west, southwest of Cleveland, and approximately nine miles west of Boyle, on MS Highway 446 (Figure 6). Bogue Phalia, to the east of the refuge, provides the majority of the drainage for the area. Refuge tributaries flowing into Bogue Phalia include Christmas Lake Branch, Stokes Bayou, Belman Bayou, and Stillwater Bayou. In wet years, Bogue Phalia will flood, causing water to back up in these tributaries and flood the forested areas of the refuge. The flood frequency for the refuge is once about every three years.

Dahomey NWR is located in the delta region of Mississippi and at its closest point is approximately 3 miles of the Mississippi River mainline levee. With approximately 8,100 acres of forest land, it is considered the largest tract of mature bottomland hardwood forest in northwest Mississippi outside of the mainline levee.

Historic Condition

Dahomey NWR is located within the Mississippi Alluvial Valley in the Yazoo River drainage basin, a portion of the historic floodplain of the Mississippi River. Prior to the construction of the Mississippi River mainline levee, much of the area would have experienced seasonal, and possibly prolonged, flooding. Native vegetation over this area was bottomland hardwood forests with a dense understory of vines and cane. Tree species present included cypress, water tupelo, various oak species, bitter-pecan, sweet gum, cottonwood, and sugarberry. The hard mast species present (i.e. oaks and pecans) would have provided a good food source for wintering waterfowl in these flooded bottomlands.

Table 3: Properties managed Dahomey National Wildlife Refuge.

REFUGE PROPERTIES								
NAME	COUNTY	ACRES	ESTATE	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	YEAR ACQUIRED	LAT/LON
Allen Gray Estate/TNC	BOLIVAR	9,269	Fee Title	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 17, 19, 22 & 27-34; T21N R7W SEC. 1-4 & 9-12	1993.00	33°42'N 90°55'W
MS Dept of Trans. (DOT)	BOLIVAR	162	Fee Title	CHOCTAW	LOBDELL	T22N R7W SEC. 34	1991.00	33°42'N 90°54'W
W. Bolívar Co. School Board	BOLIVAR	260	Lease	CHOCTAW, PACE	BEULAH, LOBDELL	T22N R7W SEC. 16	N/A	33°45'N 90°09'W
DAHOMEY NWR	**TOTAL ACRES**	**9,691**						

FmHA FEE TITLE PROPERTIES								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
CARMICLE	BOLIVAR	40	14.00	PACE	SHELBY	T24N R6W SEC. 26	07/26/91	33°54'N 90°47'W
GOSS	BOLIVAR	543	17.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 35 & 36; T25N R6W SEC. 2	07/14/94	34°05'N 90°47'W
HESTER, T. III	BOLIVAR	389	13.00	PACE	PACE	T23N R6W SEC. 1	07/26/91	33°52'N 90°46'W
HOLCOMB, D.	BOLIVAR	40	12.00	CLARKSDALE	DUNCAN	T25N R5W SEC. 13	07/26/91	34°02'N 90°40'W
RAY	BOLIVAR	50	18.00	PACE	SHELBY	T25N R6W SEC. 33	09/27/94	33°59'N 90°49'W
RILEY	BOLIVAR	100	11.00	MOUND BAYOU	MERIGOLD	T23N R5W SEC. 13	07/26/91	33°50'N 90°40'W
WATTS, J.	BOLIVAR	214	16.00	MELLWOOD	ROUND LAKE	T25N R6W SEC. 4	07/31/92	34°04'N 90°50'W
WATTS, J.	BOLIVAR	81	16.00	MELLWOOD	ROUND LAKE	T26N R6W SEC. 33	07/31/92	34°04'N 90°49'W
BOWLING	SUNFLOWER	170	14.00	BAIRD	MOOREHEAD	T19N R3W SEC. 29	12/06/91	33°29'N 90°31'W
LINDSEY, L.	SUNFLOWER	160	13.00	CLEVELAND	BOYER	T20N R4W SEC. 17	07/26/91	33°34'N 90°38'W
LINDSEY, L.	SUNFLOWER	40	13.00	CLEVELAND	RULEVILLE	T21N R4W SEC. 14	07/26/91	33°40'N 90°35'W
LINDSEY, L.	SUNFLOWER	204	13.00	CLEVELAND	RULEVILLE	T22N R4W SEC. 3	07/26/91	33°42'N 90°35'W
POVALL / KITCHENS	SUNFLOWER	180	11.00	BAIRD	MOOREHEAD	T19N R4W SEC. 25	11/06/90	33°27'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	422	11.00	BAIRD	INVERNESS	T17N R4W SEC. 24 & 25	11/06/90	33°18'N 90°33'W
POVALL / KITCHENS	SUNFLOWER	80	11.00	BAIRD	INVERNESS	T17N R4W SEC. 13 & 18	11/06/90	33°19'N 90°33'W
WALKER	SUNFLOWER	42	10.00	CLEVELAND	CLEVELAND	T21N R4W SEC. 29	10/02/90	33°38'N 90°38'W
PATTERSON / WHITTEN	SUNFLOWER	46	15.00	SUMNER	ROME	T24N R3W SEC. 15 & 22	09/01/94	33°56'N 90°29'W
WILKINS	SUNFLOWER	1,204	12.00	SUMNER	ROME	T24N R3W SEC. 35 & 36; T23N R3W SEC. 1	05/02/91	33°54'N 90°22'W
18 FEE TITLE PROPERTIES IN 2 COUNTIES		**4,005**	**ACRES**					

FmHA CONSERVATION EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
BALDUCCI	BOLIVAR	12	19C	MOUND BAYOU	MOUND BAYOU	T24N R5W SEC. 6	10/13/95	33°58'N 90°45'W
BALDUCCI	BOLIVAR	12	19C	PACE	SHELBY	T24N R6W SEC. 1	10/13/95	33°58'N 90°46'W
BASS, B.H.	BOLIVAR	69	15C	PACE	SHELBY	T25N R6W SEC. 33	04/21/92	33°59'N 90°49'W
BASS, B.H.	BOLIVAR	277	15C	MELLWOOD	LACONIA, ROUND LAKE & SHELBY	T25N R7W SEC. 25 & 36	04/21/92	34°00'N 90°52'W
BASS, B.H.	BOLIVAR	723	15C	MELLWOOD	LACONIA & ROUND LAKE	T25N R7W SEC. 23 & 24	04/21/92	34°01'N 90°52'W
CLIFTON, R.	BOLIVAR	97	10C	CHOCTAW	LOBDELL	T21N R7W SEC. 28	12/18/89	33°38'N 90°55'W
HESTER, T. JR.	BOLIVAR	55		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
HESTER, T. JR.	BOLIVAR	35		PACE	SHELBY	T25N R6W SEC. 34		33°59'N 90°48'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 26		33°47 'N 90°43'W
McCLURE, J.	BOLIVAR	40		CLEVELAND	CLEVELAND	T21N R5W SEC. 33		33°38'N 90°41'W
ALLEN	COAHOMA	4	11C	MARKS	LULA	T30N R3W SEC. 34		34°25'N 90°29'W
ALLEN	COAHOMA	52	11C	MARKS	LULA	T29N R3W SEC. 10 & 15		34°22'N 90°29'W
ALLEN	COAHOMA	31	11C	MARKS	LULA	T29N R3W SEC. 10 & 11		34°23'N 90°29'W
ALLEN	COAHOMA	30	11C	MARKS, FARRELL	LULA	T29N R3W SEC. 15		34°22'N 90°30'W
SAFLEY / BRADY	COAHOMA	13	10C	MOUND BAYOU	BALTZER	T25N R3W SEC. 32	02/26/90	33°59'N 90°31'W
MOSES	SUNFLOWER	25		MOUND BAYOU	MOUND BAYOU	T22N R4W SEC 1	08/30/64	33°48'N 90°36'W
POWELL	SUNFLOWER	40	16C	CLEVELAND	RULEVILLE	T21N R4W SEC. 11		33°40'N 90°34'W
17 CONSERV. EASEMENTS IN 3 COUNTIES		**1,554**	**ACRES**					

FmHA FLOODPLAIN EASEMENTS								
NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
HESTER, T. JR.	BOLIVAR	4		PACE	SHELBY	T24N R6W SEC. 3		33°59'N 90°48'W
POWELL	SUNFLOWER	1		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		
POWELL	SUNFLOWER	7		CLEVELAND	RULEVILLE	T21N R4W SEC. 14		33°40'N 90°34'W
POWELL	SUNFLOWER	21		CLEVELAND	BOYER & SUNFLOWER	T20N R4W SEC. 32		33°31'N 90°37'W
POWELL	SUNFLOWER	24		CLEVELAND	BOYER	T19N R4W SEC. 5		33°31'N 90°37'W
4 FLOODPLAIN EASMENTS IN 2 COUNTIES		**57**	**ACRES**					

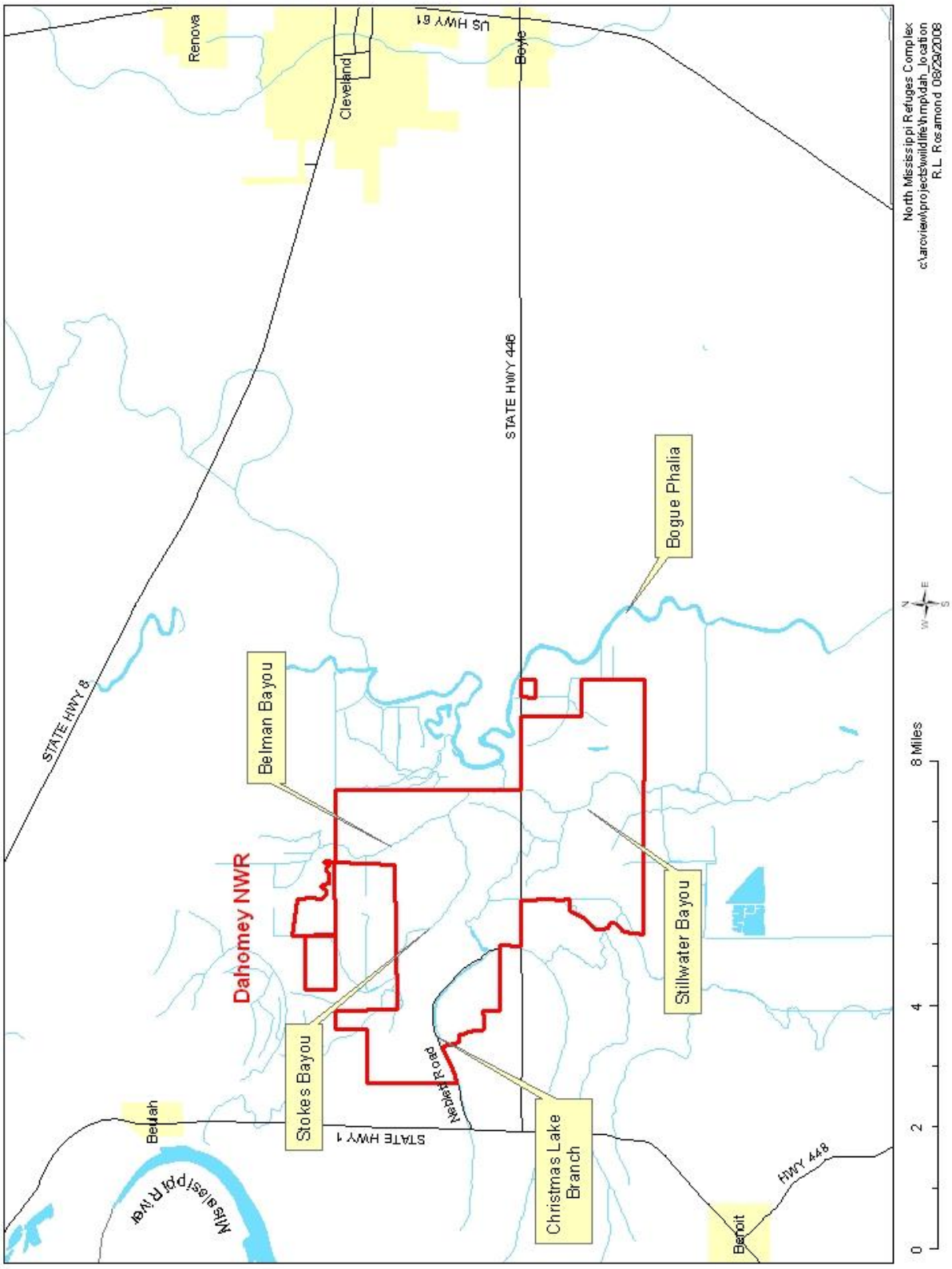


Figure 6: Location of Dahomey National Wildlife Refuge.

Soils in the region reflect the historical flooding of the area, composed mostly of soils formed from Mississippi River alluvium. Soil associations include Dowling-Alligator-Sharkey and Forestdale-Dundee-Bosket Associations. The dominant soils, Sharkey clays, are generally formed in historical slack-water areas, often some distance from stream and river channels, where flood waters slow and allow the clays to settle out. These soils are typically difficult to farm and often require artificial drainage to remove excess water. The area west of Christmas Lake Branch, an old meander, reflects the historical movement of the stream. It consists of alternating bands of Dowling clay, found in abandoned stream channels, and Dundee silty clay/clay loam, which was formed on old natural levees along the Mississippi River and small floodplain streams.

Current Condition

Dahomey NWR consists of 9,691 acres which includes approximately 370 acres of moist soil units (currently cultivated), 8,100 acres of bottomland forest (including approximately 200 acres of beaver sloughs and a 560-acre green tree reservoir), 1,000 acres of reforestation areas, and 240 acres of agricultural fields (Figure 7). In previous years, the moist soil units were cultivated to prevent natural succession and to provide foraging for wintering waterfowl. Beginning in 2007, moist soil units were farmed to increase food available to wintering waterfowl.

Dahomey's 8,100 acres of bottomland hardwood forest provides important habitat for numerous species of migrant land birds such as Mississippi kite, summer tanager, ruby-throated hummingbird, wood thrush, hermit thrush, yellow-billed cuckoo, blue-gray gnatcatcher, great crested flycatcher, eastern wood-pewee, Acadian flycatcher, hooded warbler, prothonotary warbler, Swainson's warbler, painted bunting, white-eyed vireo, and red-eyed vireo. Flocks wild turkey may be seen year round and six species of woodpeckers can be seen during the winter along with barred, great horned, screech, and short eared owls. Dahomey has been identified by Partners in Flight as a priority area in the lower MAV for rare or declining land birds.

Although several forest compartments have been cut within the last 30 years, the majority of the compartments have had no timber harvest for 40 – 70 years. A timber cruise was conducted in April 2008 and, once the current condition of the forest has been assessed, the refuge plans to move forward with a forest management plan. Likewise, the reforestation areas contain stands of trees 8 – 15 years old and are likely to require some management activities in the near future.

Management Practices from Historic to Current Conditions

Dahomey NWR is located on the grounds of the old Dahomey Plantation founded in 1833 by F.G. Ellis and named after the homeland of his slaves. Much of the land west of the refuge was probably cleared for cultivation around this time. The land went through several owners until it was purchased by Allen Gray in 1936. The portion that became the refuge was known as the "Allen Gray Woods". The forested area was leased to the Benoit Hunting Club (beginning circa 1949) while the agricultural lands were leased to local farmers for cultivation. In 1990, the Nature Conservancy purchased the land to hold for the Service. Until the Service was able to purchase the lands, the agricultural fields were leased to farmers by the Conservancy, while the forested area was leased to the Service. Over the following several years, the Service purchased

the land from the Nature Conservancy. By 1993, the entire holdings of the Nature Conservancy (9,272 acres) had been purchased by the Service. In 1991, the State Highway Department transferred 162 acres to the Service as a mitigation bank. The most recent addition is 260 acres, leased from the Bolivar County school district until 2011, when it will be up for renewal.

At the time of purchase, the refuge contained approximately 1,390 acres of agricultural fields, with the bulk of the remaining acreage consisting of forested areas. The forested portion of the refuge (approximately 8,100 acres) was most likely originally cut in the 1940's to provide lumber for the war effort. The forest was allowed to regenerate naturally, but portions were cut in 1969, 1978, and 1983. Crops cultivated in the agricultural fields included soybeans, rice, and wheat. When the Service purchased the land, the acreage farmed was gradually reduced, with the agricultural lands being reforested or converted to moist soil units. Reforestation began in 1992 and was largely completed by 2000. In 1994, the Service began construction of four moist soil units, totaling 88 acres, north of MS Highway 446 (units 9 – 12). In 2001, Ducks Unlimited constructed levees around two agricultural fields south of the highway (units 30 and 40). These levees and the presence of a well on each unit, allow the areas to be flooded each winter.

In addition to the construction of moist soil units, the Service has installed water control structures in several ditches, including two that allow the flooding of the 560-acre green tree reservoir, located along Stillwater Bayou. This unit is typically flooded three of every five years to provide additional bottomland habitat during the winter months.

In February 1994, a devastating ice storm hit the refuge. According to the 1994 Annual Narrative, damage was "uniform and complete" with the majority of the trees losing their tops and major limbs. As a result of opening the canopy, the forest developed a dense understory layer which, when coupled with the downed timber, hindered entry into much of the forest for several years. This event has probably had the largest impact on refuge habitat since the Service acquired the property.

Barred owl at Dahomey NWR
(L. Pace/Friends of Dahomey NWR)

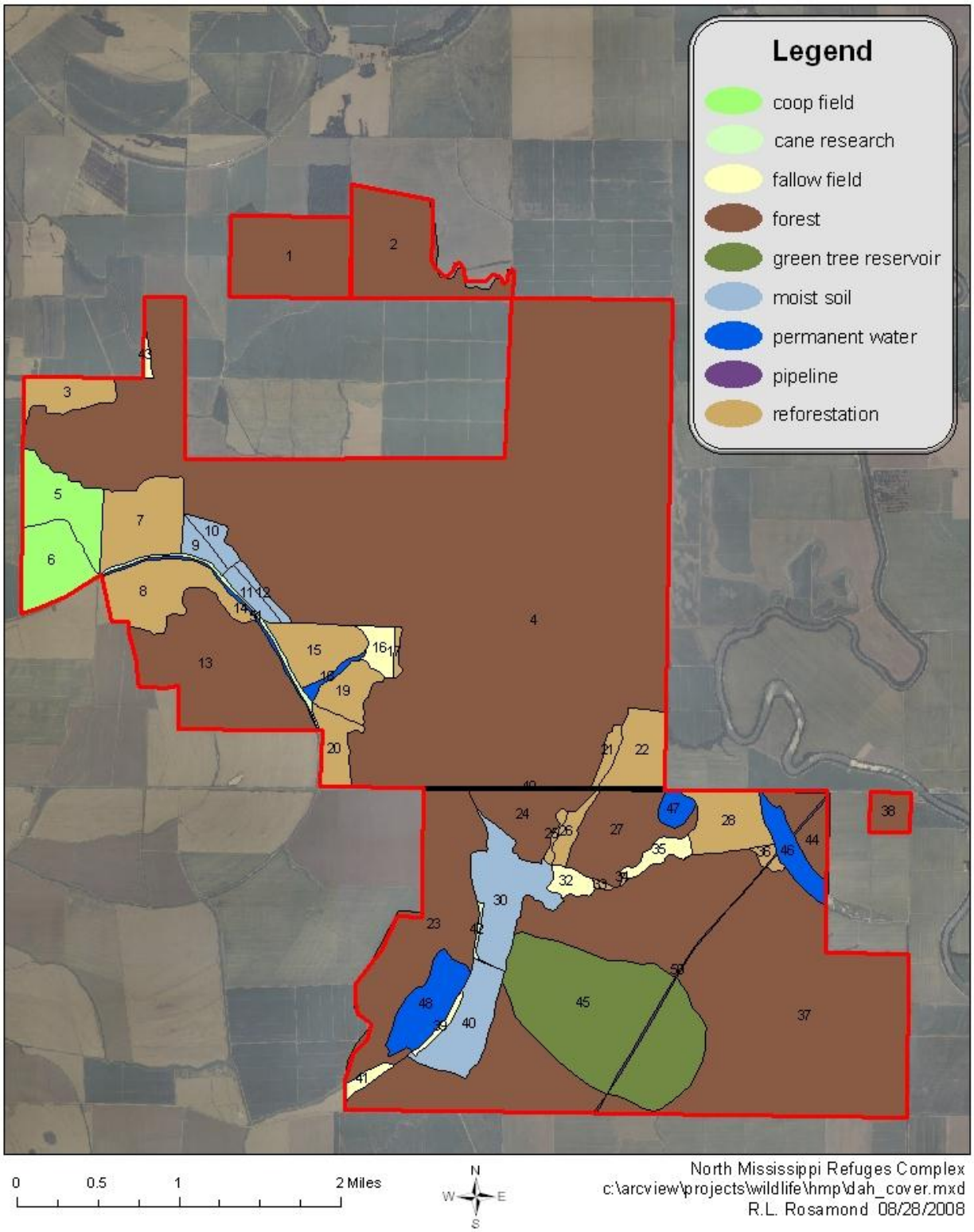


Figure 7: Cover types present on Dahomey National Wildlife Refuge.

Tallahatchie NWR

Tallahatchie National Wildlife Refuge was established in 1991 under the Migratory Bird Conservation Act and the Consolidated Farm and Rural Development Act. Under these Acts, the refuge purpose is "for use as inviolate sanctuary, or for any other management purpose, for migratory birds" and for conservation purposes. Specifically, the draft Environmental Assessment and Land Protection Plan state the refuge was proposed "…to preserve and manage wintering habitat for Canada geese, mallard, pintail, blue-winged teal, and wood duck and production habitat for wood duck…" in accordance with the goals in the North American Waterfowl Management Plan. The work area for Tallahatchie NWR covers 10 counties and includes Tallahatchie NWR (4,199 acres), 15 FSA Fee-title properties (3,227 acres), 32 Conservation Easements (2,611 acres), and 9 Floodplain Easements (1,832 acres) (Table 4).

Location

Tallahatchie NWR is located in the delta region of Mississippi in Grenada and Tallahatchie Counties and is separated into two units: the main tract of the refuge totaling 3,642 acres and the 557-acre Walker Tract. The main unit of Tallahatchie is approximately two miles east of Philipp, Mississippi, on MS Highway 8. This tract is approximately 20 minutes from the Grenada Headquarters office, where staff is located (Figure 8). The Walker Tract is located approximately 3.5 miles northeast of the main tract along Brushy Creek. It is about 35 minutes from the Grenada Headquarters.

Historic Condition

Tallahatchie NWR is located within the Mississippi Alluvial Valley in the Yazoo River drainage basin, a portion of the historic floodplain of the Mississippi River. The closest major water body is the Tallahatchie River, less than 1 mile west of the refuge. Historically, the area would have been subject to seasonal flooding, as the Tallahatchie River over-topped its banks and spread into the surrounding floodplain. Tippo Bayou, a tributary of the Tallahatchie River that passes through the refuge, would have also flooded seasonally. Likewise, the streams historically crossing the Walker Tract would have typically flooded that area. This seasonal flooding replenished nutrients in the bottomland area and allowed the formation of a bottomland hardwood forest, probably dominated by oaks, sweet gum, and sugarberry. The numerous sloughs and oxbows associated with Tippo Bayou were likely flooded most of the year and would have been dominated by cypress and tupelo. In dry years, these areas would have likely supported annual grasses and sedges, which would provide additional seeds for waterfowl in the winter.

Soils in this area reflect the hydrological history of the area, consisting primarily of Alligator-Forestdale and Alligator Associations, which are formed from alluvium from the Mississippi River. In general, these are poorly drained acidic soils that are generally too wet in the winter and spring to be suitable for residential and industrial development.

Table 4: Properties managed by Tallahatchie National Wildlife Refuge

REFUGE PROPERTIES

NAME	COUNTY	ACRES	ESTATE	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	YEAR ACQUIRED	LAT/LON
Walker Tract	TALLAHATCHIE	557	Fee Title	PHILIPP	CASCILLA	T23N R2E SEC. 21, 22 & 28	1991	30°50'N 90°05'W
John Whitten	GRENADA, TALLAHATCHIE	509	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC.13 & 24; T22N R2E SEC. 18	1992	33°45'N 90°08'W
John Hancock	GRENADA, TALLAHATCHIE	1,361	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 1, 12 & 13; T22N R2E SEC. 7 & 18	1992	33°47'N 90°08'W
Chicago Mills/DOT	TALLAHATCHIE	1,656	Fee Title	GREENWOOD, PHILIPP	MONEY, PHILIPP	T22N R1E SEC. 14, 22-27 & 34	1997	33°45'N 90°09'W
Sayle	TALLAHATCHIE	116	Fee Title	PHILIPP	PHILIPP	T22N R1E SEC. 24	2003	33°45'N 90°08'W
TALLAHATCHIE NWR	**TOTAL ACRES (Fee Title only)**	**4,199**						

FmHA FEE TITLE PROPERTIES

NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
GILLON	GRENADA	245	11.00	GRENADA	GRENADA	T22N R5E SEC. 21	07/14/93	33°45'N 89°46'W
GWIN	LEFLORE	343	16.00	SUMNER	GLENDORA	T22N R2W SEC. 13 & 24	02/19/92	33°45'N 90°21'W
HENSON	LEFLORE	165	19.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	07/15/92	33°19'N 90°20'W
HENSON / A.C.O.E.	LEFLORE	275	no	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 19	?	33°19'N 90°20'W
KIMBROUGH, A.M.	LEFLORE	40	18.00	MOSSY LAKE	MONTGOMERY	T17N R1W SEC. 18	04/18/92	33°19'N 90°20'W
MILLICAN, H.	LEFLORE	2	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 30	03/05/92	33°23'N 90°14'W
MILLICAN, H.	LEFLORE	76	17.00	SEVEN PINE	SIDON	T18N R1E SEC. 31	03/05/92	33°23'N 90°14'W
ROBERTSON	LEFLORE	655	14.00	GREENWOOD	GREENWOOD	T20N R1E SEC. 24 & 25	10/02/90	33°34'N 90°08'W
SCOTT	LEFLORE	226	20.00	SUMNER	BROOKS	T22N R2W SEC. 8	09/01/94	33°47'N 90°25'W
SCOTT	LEFLORE	80	20.00	SUMNER	BROOKS	T22N R2W SEC. 3	09/01/94	33°48'N 90°23'W
SCOTT	LEFLORE	90	20.00	SUMNER	BROOKS	T22N R2W SEC. 9	09/01/94	33°47'N 90°24'W
JAMES	TALLAHATCHIE	160	10.00	PHILLIP	TIPPO	T24N R1E SEC. 36	10/11/90	33°54'N 90°08'W
PENNINGTON	TALLAHATCHIE	470	17.00	SUMNER	WEBB & VANCE	T25N R2W SEC.36		33°59'N 90°21'W
PENNINGTON	TALLAHATCHIE	360	17.00	TUTWILER	TUTWILER & VANCE	T25N R2W SEC. 26		34°00'N 90°22'W
PENNINGTON	TALLAHATCHIE	40	17.00	TUTWILER	VANCE	T25N R1W SEC. 2		34°03'N 90°15'W
15 FEE TITLE PROPERTIES IN 3 COUNTIES		**3,227**	**ACRES**					

FmHA CONSERVATION EASEMENTS

NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
CALHOUN / DANCE	CARROLL	149	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31 & 32		33°17'N 89°47'W
CALHOUN / DANCE	CARROLL	57	10C	COILA	PEACHAHALA CREEK	T16N R5E SEC. 6		33°16'N 89°49'W
CALHOUN / DANCE	CARROLL	16	10C	COILA	PEACHAHALA CREEK	T17N R5E SEC. 31		33°17'N 89°48'W
STATEN	GRENADA	74	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20		33°45'N 90°06'W
HARRIS, W.L.	GRENADA	18	10C	PHILIPP	CASCILLA	T22N R2E SEC. 10		33°46'N 90°04'W
MOOR, R.B.	LEFLORE	11	15C	GREENWOOD	GREENWOOD	T19N R1W SEC. 12	11/29/90	33°31'N 90°14'W
MOOR, R.B.	LEFLORE	77	15C	GREENWOOD & SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31 'N 90°15'W
MOOR, R.B.	LEFLORE	17	15C	SCHLATER	SHELLMOUND	T19N R1W SEC. 12	11/29/90	33°31'N 90°15'W
MOOR, R.B.	LEFLORE	58	15C	SCHLATER	GREENWOOD & SHELLMOUND	T19N R1W SEC. 13	11/29/90	33°30'N 90°15'W
TRIBBLE	LEFLORE	12		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°12'W
TRIBBLE	LEFLORE	28		GREENWOOD	MONEY	T21N R1E SEC. 20		33°40'N 90°13'W
HAWKINS	LEFLORE	33	12C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 34	09/20/90	33°33'N 90°23'W
KOLLE, R	LEFLORE	109	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°35'N 90°22'W
UPCHURCH / PRESTRIDGE	LEFLORE	250	11C	SCHLATER	BEAR CUT BAYOU	T20N R2W SEC. 22, 26 & 27	10/01/90	33°34'N 90°23'W
SAUNDERS	LEFLORE	15	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
SAUNDERS	LEFLORE	45	13C	MOSSY LAKE & SCHLATER	COLONY TOWN	T19N R2W SEC. 20	07/09/90	33°30'N 90°25'W
DAVIS, HIRAM	TALLAHATCHIE	17	13C	PHILIPP	MONEY	T22N R1E SEC. 29	02/15/90	33°44'N 90°12'W
DENMAN	TALLAHATCHIE	8	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°59'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
DENMAN	TALLAHATCHIE	6	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
HARRIS, W.L.	TALLA.,GRENA.	389	10C	PHILIPP	CASCILLA	T23N R2E SEC. 35 & 36; T22N R2E SEC. 1	04/28/89	33°48'N 90°03'W
HARRIS, W.L.	TALLAHATCHIE	40	10C	PHILIPP	CASCILLA	T23N R2E SEC. 34	04/28/89	33°48'N 90°04'W
MABUS	TALLAHATCHIE	42	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 26 & 27		34°00'N 90°10'W
MABUS	TALLAHATCHIE	416	16C	PHILLIP	PHILIPP & TIPPO	T24N R1E SEC. 36; T23N R1E SEC. 1 & 12		33°53'N 90°08'W
MABUS	TALLAHATCHIE	7	16C	PHILLIP	PHILIPP	T23N R1E SEC. 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	81	11C	CROWDER & TUTWILER	CROWDER	T25N R1W SEC. 12	11/02/90	34°02'N 90°14'W
MILAM	TALLAHATCHIE	3		PHILIPP	TIPPO	T24N R1E SEC. 11	10/22/98	33°57'N 90°09'W
MILAM	TALLAHATCHIE	40		PHILIPP	TIPPO	T24N R1E SEC. 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	35	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°57'N 90°06'W
HARRIS, W.L.	WEBS., CHOC.	515	10C	not available	EUPORA & SAPA	T19N R10E SEC. 9, 10 & 15	04/28/89	33°31'N 89°14'W
HOLLAND / BOONE	YALOBUSHA	37		GRENADA	SCOBEY	T25N R4E SEC.36		33°59'N 89°49'W
32 CONSERV. EASEMENTS IN 8 COUNTIES		**2,611**	**ACRES**					

FmHA FLOODPLAIN EASEMENTS

NAME	COUNTY	ACRES	Tract #	15' QUAD	7.5' QUAD	LEGAL DESCRIPTION	DATE ACQUIRED	LAT/LON
STATEN	GRENADA	190	12C	PHILIPP	CASCILLA	T22N R2E SEC. 17 & 20	07/14/95	33°45'N 90°06'W
KOLLEE, R	LEFLORE	191	10C	SCHLATER	SHELL MOUND	T20N R2W SEC. 23	05/04/90	33°53'N 90°22'W
DAVIS, HIRAM	TALLAHATCHIE	240	13C	PHILIPP	MONEY	T22N R1E SEC. 29		33°44'N 90°13'W
DENMAN	TALLAHATCHIE	77	14C	PHILIPP	TIPPO	T24N R1E SEC. 5		33°58'N 90°12'W
MABUS	TALLAHATCHIE	429	16C	CROWDER	FISH HOOK LAKE	T25N R1E SEC. 25 & 26		34°00'N 90°09'W
MABUS	TALLAHATCHIE	168	16C	PHILIPP	PHILIPP	T23N R1E SEC. 20 & 21		33°50'N 90°12'W
MACKEY / GASTON, J.	TALLAHATCHIE	217	11C	CROWDER & TUTWILER	CROWDER & VANCE	T25N R1W SEC. 12	11/02/90	34°03'N 90°15'W
MILAM	TALLAHATCHIE	160		PHILIPP	TIPPO	T24N R1E SEC. 11 & 12	10/22/98	33°57'N 90°09'W
SHOOK	TALLAHATCHIE	160	15C	PHILIPP	PAYNES	T24N R2E SEC. 17	07/14/95	33°56'N 90°06'W
9 FLOODPLAIN EASEMENTS IN 3 COUNTIES		**1,832**	**ACRES**					

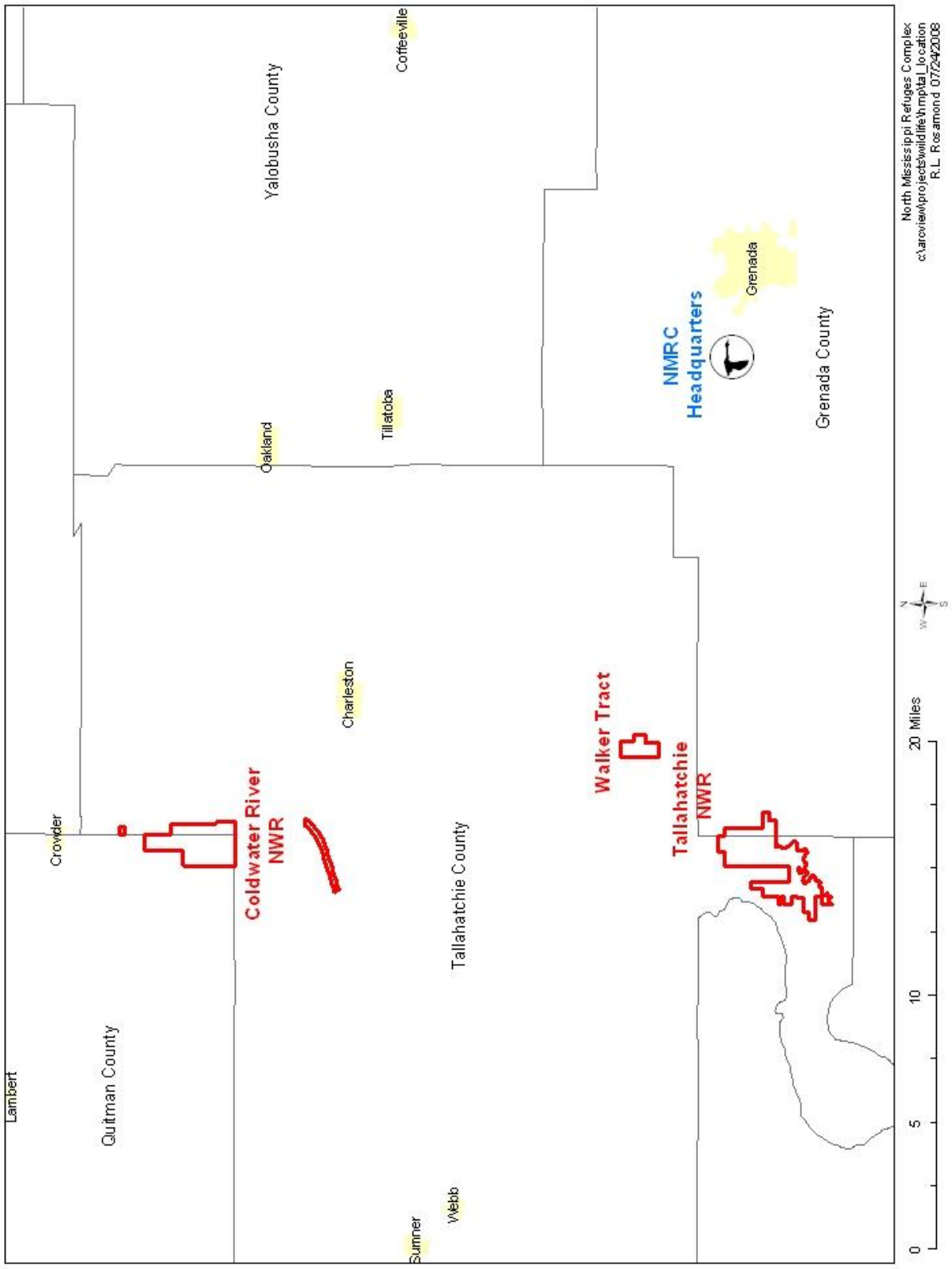


Figure 8: Location of Tallahatchie National Wildlife Refuge.

These soils also experience shrinking and cracking as they dry, and swell when wet. These soils are high in natural fertility and high in available water capacity. However, drainage is necessary in most of these areas to reduce ponding and cultivation is frequently delayed in the springtime.

Current Condition

Tallahatchie NWR currently consists of 4,199 acres which includes 278 acres of moist soil units, 250 acres of fallow fields, 750 acres of aquatic habitats, 550 acres of agricultural fields, and approximately 1,700 acres of reforestation areas (Figure 9). Presently, the bulk of the management occurs on the moist soil units. In previous years the six units on the main part of Tallahatchie have alternated between fallow conditions, farming and moist soil management. These units were originally transferred to the Service as part of a Mississippi Department of Transportation (MDOT) mitigation bank. The original management agreement for these units was focused on managing the units as permanent wetlands with emergent vegetation. However, NMRC is working to rewrite the original management plan to allow more traditional management and periodic (every 2 – 4 years) disturbance.

Over the last few years, the 250 acres of fallow fields have been mowed on a 2-year rotational basis to provide habitat for migratory birds, while no active management has occurred in most of the aquatic habitats or the reforestation areas. Long Branch, a 90-acre oxbow off of Tippo Bayou has been stocked with various species of sunfish, largemouth bass, and channel catfish to improve recreational fishing. The reforestation areas contain stands of trees 8 – 15 years old and are likely to require thinning in the near future. Approximately 700 acres of the agricultural lands are farmed in milo, corn, or soybeans each year.

The moist soil units, old oxbows and low-lying fields along Tippo Bayou flood almost every winter and hold large concentrations of waterfowl. Wood ducks, eastern screech owls, barred owls, great-horned owls, loggerhead shrikes, and red-tailed hawks are common year-round residents. Blue grosbeaks, dickcissels, indigo and painted buntings can be seen during summer. The refuge also supports a healthy deer population.

Doe at Tallahatchie NWR (H. Jones/USFWS)

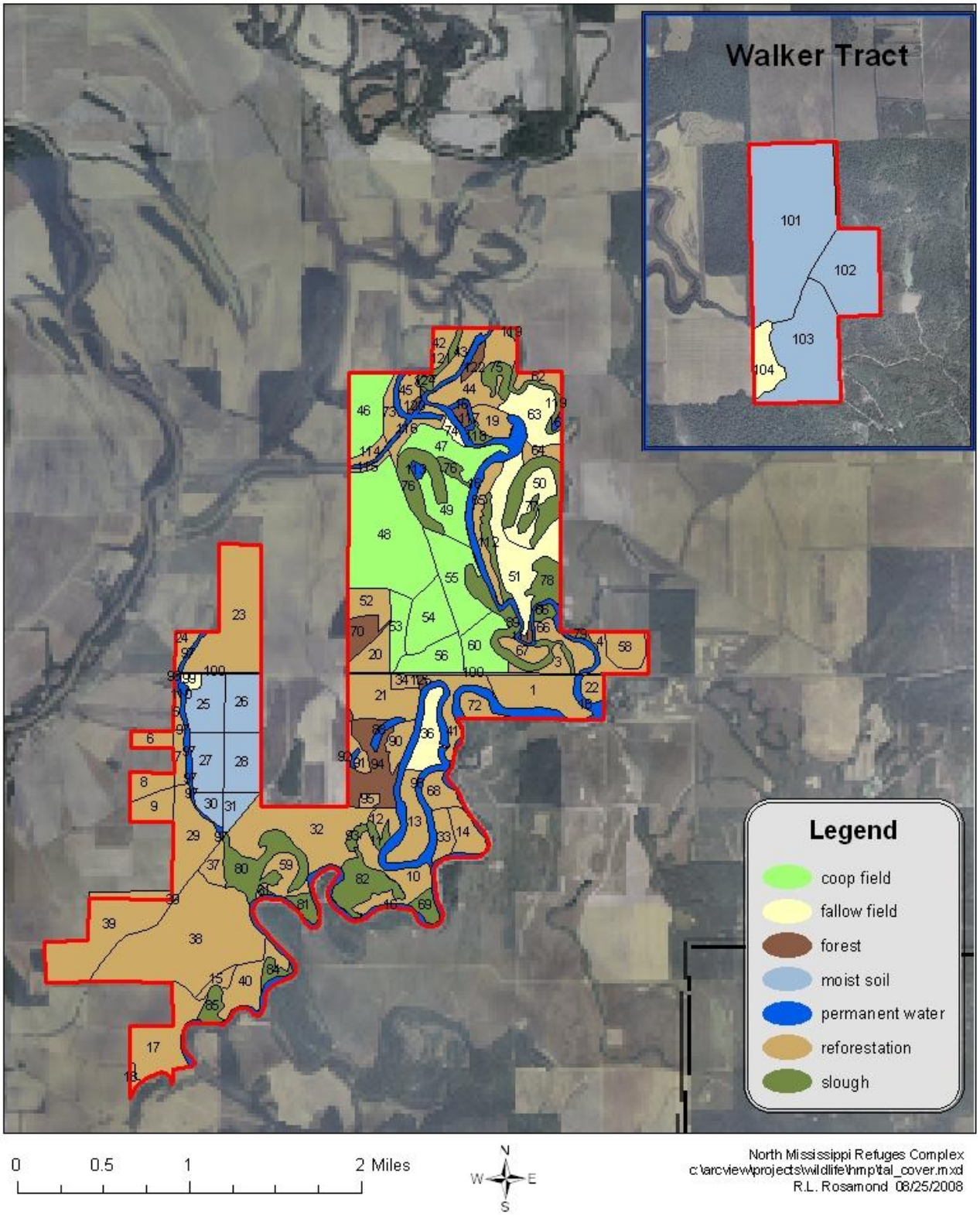


Figure 9: Cover types present on Tallahatchie National Wildlife Refuge.

Management Practices from Historic to Current Conditions

The first land acquired for Tallahatchie NWR was the 557-acre Walker Tract. This tract was originally purchased by the Ducks Unlimited in 1990 developed jointly by the Service and DU under a DU MARSH Project, and then repurchased by the Service in 1991. After being cleared, the property had been farmed in cotton, then rice and contained 3 wells, 3 water control structures, and an extensive levee system. The work completed by DU and the Service involved renovating the levee, raising the low spots, installing emergency spillways, and installing an additional water control structure.

In 1992, two more tracts were added to Tallahatchie NWR. These included 1,138 acres purchased from John Hancock Insurance Company and 509 acres purchased from John Whitten. The majority of this land was located north of highway 8, with approximately 400 acres located south of the MS Highway 8 in the vicinity of Tippo Bayou and Long Branch. These tracts were composed mainly of cropland and led to the initiation of cooperative farming on Tallahatchie NWR.

Begun in 1993, cooperative farming encompassed about 1,000 acres per year for the next several years. Crops were primarily soybeans, rice, milo, and corn, with all the corn planted contributing to the refuge share. During this time frame, the farmers' "rent" consisted of either crops left standing on 25% of the acreage farmed, or a combination of standing crops and in-kind services. These services included building and repairing levees, replacing water control structures, installing water distribution pipes, pumping water for fall and winter waterfowl, among other things.

In 1997, the refuge acquired an additional 1,656 from Mississippi Department of Transportation (MDOT) as part of a mitigation bank. This property was primarily located south of MS Highway 8, contiguous with the existing main tract of the refuge. As part of the acquisition agreement, agriculture was to be phased out on this property over the following three years. There was a farming agreement currently in place that was gradually phased out over the course of three years. As a result, the refuge nearly doubled in size and the acreage in agriculture also doubled immediately following this acquisition. Major crops remained the same.

Beginning with the acquisition in 1997, the refuge began removing acreage from agriculture and reforesting areas. Prior to this, any agricultural lands that weren't farmed were primarily maintained as fallow fields or managed for moist soil vegetation. Over a 4-year period, nearly 1,300 acres were reforested on Tallahatchie refuge. An additional 450 acres, primarily in smaller or isolated fields were allowed to reforest through natural regeneration, with some planting to supplement the natural regeneration.

The most recent acquisition was a 116-acre parcel purchased from Ike Sayle in 2003. This tract was an inholding within the main portion of the refuge and consisted of forested habitat and grasslands enrolled in CRP. The grasslands have been allowed to regenerate naturally.

Climate Data

Climate data is obtained for Greenwood, Mississippi a centralized location for the complex. Table 5 depicts the climate data acquired using the NASA Online Weather Data system entitled NOWData (www.weather.gov/climate). The average summer temperature was higher compared to the 30 year norm. Additionally, the precipitation was lower, sometimes less than half of the 30 year norm, especially in January through March, May, August, and October. Only March, July, August, September and December experienced higher values in relation to the 30 year norm.

Table 5: 2012 weather information obtained from the National Weather Service (www.weather.gov/climate/) for Greenwood Leflore, MS. Numbers in parenthesis represent the 30 year norm (1981 – 2010).

Month	**Average High Temp. (F) (30 year norm)**	**Average Low Temp. (F) (30 year norm)**	**Average Temp. (F) (30 year norm)**	**Total Precipitation (in.) (30 year norm)**
January	62.2 (53.6)	37.0 (34.3)	49.6 (43.9)	2.48 (4.56)
February	60.9 (58.3)	38.5 (37.8)	49.7 (48.1)	3.60 (4.48)
March	76.4 (67.0)	53.2 (45.1)	64.8 (56.1)	4.42 (4.31)
April	76.7 (75.2)	53.3 (52.6)	65.0 (63.9)	4.22 (5.10)
May	86.6 (82.9)	62.3 (61.9)	74.5 (72.4)	2.07 (5.06)
June	90.3 (89.2)	64.8 (68.7)	77.6 (79.0)	1.85 (3.90)
July	91.9 (91.9)	72.1 (71.8)	82.0 (81.8)	4.61 (3.73)
August	90.2 (92.3)	69.5 (70.7)	79.8 (81.5)	4.14 (2.78)
September	86.4 (87.0)	62.1 (63.5)	74.2 (75.2)	6.84(3.70)
October	73.5 (77.0)	49.5 (52.6)	61.5 (64.8)	1.15 (3.86)
November	66.0 (66.7)	35.5 (43.7)	50.7 (55.2)	1.81 (4.61)
December	62.1 (56.2)	40.0 (36.5)	51.1 (46.4)	7.07 (5.71)

Sunrise at Coldwater River NWR (B. Rosamond/USFWS)

1

Monitoring and Studies

1a. Surveys and Censuses

The following are significant surveys and censuses that took place during 2012 on lands administered by the NMRC.

Waterfowl survey
WB Rosamond conducted waterfowl surveys at Coldwater River NWR twice a month from mid-October 2011 – late February 2012. Surveys were conducted from Levee Road and perimeter levees surrounding the ponds. Areas surveyed included the Warwick Tract (from Levee Road), the borrow pits (from Levee Road), and the ponds (from Levee Road and selected pond levees). As in previous years, visibility was limited in some units due to heavy vegetation. Results are shown in Table 6.

Overall, counts were excellent for 2012, with duck numbers peaking first in mid-November with approximately 9,800 ducks (more than ½ of which were green-winged teal) and then again in early January at over 13,000 birds on the ponds. This was similar to 2011 counts which peaked at approximately 15,000 ducks. Geese numbers were down slightly from 2011 counts, peaking in late November with approximately 1,800 geese. These included both white-fronted geese and snow geese. As in previous years, number of birds observed on the refuge dropped soon after the close of hunting season. This is most likely due to ducks dispersing to other areas once hunting pressure is removed.

Christmas Bird Count
WB Rosamond, Friends of Dahomey, and multiple volunteers participated in the Dahomey Christmas Bird Count. The count circle includes all areas within a 5-mile radius circle, including all of Dahomey. A total of 13,125 individuals of 91 species were found on the day of the count.

Breeding bird survey
WB Rosamond conducted three bird surveys along Breeding Bird Survey (BBS) routes in June. These routes are part of a nationwide survey geared toward detecting changes in bird populations for species breeding in the United States. A total of 662 individuals of 43 species were detected on the Tippo route. (This route passes through the north side of Tallahatchie NWR, before moving through private land.) A total of 515 individuals of 45 species were detected on the Tallahatchie route. (This route runs along the east side of Coldwater River NWR, before moving through private land.) A new route was established through Dahomey NWR and through the property between the Refuge and the Mississippi mainline levee. A total of 596 individuals of 39 species were detected.


Belted kingfisher (L. Pace/ Friends of Dahomey NWR)

Table 6: Summary of species observed during waterfowl surveys at Coldwater River NWR.

	Unit	Total ducks	Total geese	Total coots	Unknown/Misc. ducks	Mallards	Gadwall	Northern pintail	Northern shoveler	American wigeon	Am. green-winged teal	Wood duck	Scaup/ ring-necked duck	Bufflehead	Ruddy duck	Hooded Merganser	American coot	Canada goose	Greater white-fronted goose	Lesser snow goose
10/28/2011	Ponds	1138	88	464	0	25	149	104	180	126	554	0	0	0	0	0	464	135	88	0
	Borrow pits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1138	88	464	0	25	149	104	180	126	554	0	0	0	0	0	464	135	88	0
11/14/2011	Ponds	9773	276	646	0	2565	712	333	279	158	5623	10	83		10	1	646	1	275	0
	Borrow pits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	9773	276	646	0	2565	712	333	279	158	5623	10	83	0	10	1	646	1	275	0
11/30/2011	Ponds	6474	1785	270	0	2278	598	31	92	22	3361	0	104	3	13	0	270	0	945	840
	Borrow pits	28	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	6502	1785	270	0	2306	598	31	92	22	3361	0	104	3	13	0	270	0	945	840
12/19/2011	Ponds	8902	761	197	0	1776	2449	112	1574	52	2567	0	222	0	181	0	197	0	761	0
	Borrow pits	37	0	0	0	33	4	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	7	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0
	Total	8946	761	197	0	1809	2453	112	1574	52	2567	0	229	0	181	0	197	0	761	0
1/6/2012	Ponds	13420	896	123	404	2027	3207	254	2195	16	4667	2	343	26	279	0	123	0	896	0
	Borrow pits	53	0	0	0	45	6	0	0	2	0	0	0	0	0	0	0	0	0	0
	Warwick	15	0	0	0	8	0	0	0	0	2	5	0	0	0	0	0	0	0	0
	Total	13488	896	123	404	2080	3213	254	2195	18	4669	7	343	26	279	0	123	0	896	0
1/18/2012	Ponds	8410	763	347	0	1235	1843	169	1731	60	2483	2	707	24	186	0	347	0	763	0
	Borrow pits	68	0	0	0	38	30	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	65	0	0	0	63	0	0	0	0	0	2	0	0	0	0	0	0	0	0
	Total	8543	763	347	0	1336	1873	169	1731	60	2483	4	707	24	186	0	347	0	763	0
2/2/2012	Ponds	6026	264	678	5	1164	1378	72	1345	9	1312	0	410	33	298	0	678	0	263	1
	Borrow pits	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	0	0	0	0	18	0	0	0	0	0	6	3	0	0	0	0	0	0	0
	Total	6026	264	678	5	1184	1378	72	1345	9	1312	6	413	33	298	0	678	0	263	1
2/21/2012	Ponds	3036	960	671	0	147	540	28	1556	1	387	0	86	36	235	0	671	0	954	6
	Borrow pits	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	Warwick	304	0	6	0	129	5	0	0	0	4	8	158	0	0	0	6	0	0	0
	Total	3342	960	677	0	276	547	28	1556	1	391	8	244	36	235	0	677	0	954	6

Waterfowl at Coldwater River NWR (B. Rosamond/USFWS)

Mid-winter counts

WB Rosamond, with assistance from RM Kristofik, TE Richardson, and BT George conducted mid-winter counts on all three Refuges during the first week of January. Overnight temperatures during the survey week were below freezing with daytime highs in the mid-40's. Table 7 below summarizes the results of all three surveys.

Table 7: Mid-winter survey results for Coldwater River, Dahomey, and Tallahatchie NWR's.

Refuge	**Duration (hrs:mins)**	**No. Ducks**	**No. Geese**
Coldwater River	3:27	13,488	896
Dahomey	4:45	875	95
Tallahatchie	2:36	3,051	382

The majority of birds on Coldwater River NWR were on the ponds, with only about 70 birds on other units. Numbers of ducks on individual ponds ranged from 0 to over 1,200. The majority of the birds on Dahomey were on the flooded agricultural fields (DU fields). Approximately 180 acres of un-harvested corn were left by the farmer as payment, and the area was used heavily throughout the winter. Vegetation was very dense and not all birds flushed so it's likely that the total number of birds present was higher than the number reported. The mid-winter count on Dahomey was conducted in conjunction with the Christmas Bird Count (2011). Over half of the birds detected on Tallahatchie NWR were on the Walker Tract. Due to the isolation of many sloughs and density of vegetation on Tallahatchie, it's likely that numbers were significantly higher than what was detected. Greater white-fronted geese accounted for all of the goose observations on Coldwater River NWR, with snow geese seen on Dahomey and Tallahatchie NWR's.

Waterfowl in flooded milo field on Tallahatchie NWR (H. Jones/USFWS)

Eagle nest monitoring

WB Rosamond monitored three eagle nests on private lands during the 2012 nesting season. Eagles were present at all three sites in March, and all three appeared to be incubating eggs. Two sites were confirmed with 2 chicks each in early April, and one of these still sites had 1 chick at the end of May. This information is sent to the Museum of Natural Sciences in Jackson, who serves as the state repository for eagle nesting data.

Acoustical monitoring for bats

WB Rosamond, RM Kristofik, and STEP Coleman conducted acoustical monitoring for bats on Coldwater River, Dahomey, and Tallahatchie National Wildlife Refuges. Routes for Coldwater River and Dahomey followed the existing breeding bird survey routes for those refuges with slight modifications. The Tallahatchie route began at the southern end of South Entrance Road, proceeded through the southern half of the Refuge, then followed the existing breeding bird survey route. Routes ranged in length from 25.4 – 30.4 miles. Routes were run twice in June and once in July, using an Anabat detector strapped to the roof of a vehicle travelling between 15 and 20 miles per hour. Data were downloaded from the detector and sent to a Sharepoint site for analysis and species identification. This is part of a region-wide effort to document bat species present on refuges. Initial analysis looked at the number of bat calls detected on each route and showed variation both between the three refuges, as well as between each run on each refuge. Further analysis should address species detected on each route. Table 8 below summarizes the number of calls recorded and the number of calls per mile (for standardization) for each run on each refuge. In addition to the standardized routes surveyed. WB Rosamond and RM Kristofik also recorded bat calls while conducting frog surveys. Those data have not yet been analyzed.

Table 8: Summary of results for bat acoustical monitoring on Coldwater River, Dahomey, and Tallahatchie NWR's. Numbers listed under each run represent the number of calls detected and the adjusted value of number of calls detected per mile (in parentheses).

	Route length (miles)	**Run 1** No. calls (no. calls/mile)	**Run 2** No. calls (no. calls/mile)	**Run 3** No. calls (no. calls/mile)	**Average** No. calls (no. calls/mile)
Coldwater River	25.4	46 (1.81)	82 (3.23)	112 (4.41)	80 (3.15)
Dahomey	27.5	44 (1.60)	81 (2.95)	54 (1.96)	60 (2.17)
Tallahatchie	30.4	145 (4.77)	181 (5.95)	130 (4.28)	152 (5.00)

Bat mistnetting and telemetry

RM Kristofik, WB Rosamond, STEP Coleman and SCA Ellie Mangelinckx conducted a bat mistnetting and telemetry project on Tallahatchie and Dahomey NWR's. The goals of the project were to verify species present on each refuge and to locate roost sites for southeastern myotis (*Myotis austroriparius*) and Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) using radio telemetry. On Dahomey NWR, netting occurred from June 27 – September 18, approximately every other week. Numbers of bats captured per night ranged from 0 – 12 over the 7 nights sampled with an average capture rate of 5.9 bats per night. The only species captured were red bats (*Lasiurus borealis*) (22 captures) and evening bats (*Nycticeius humeralis*) (17 captures). Two bats were captured but escaped before they could be identified. One additional night of netting was conducted by bat biologist Chester Martin (retired, U.S. Army Corps of Engineers). A total of two evening bats were captured.

On Tallahatchie NWR, netting occurred approximately every other week from July 3 – September 21. Numbers of bats captured per night ranged from 1 – 6 over the 5 nights sampled with an average capture rate of 4.2 bats per night. Three species were captured at Tallahatchie NWR: red bats (8 captures), evening bats (4 captures) and southeastern myotis (9 captures). Only two different areas were sampled on Tallahatchie. Since the project was targeting southeastern myotis, once we found a site that had this species, we continued trapping at that location. All southeasterns captured had a 0.3 g transmitter affixed between their shoulder blades using the protocol developed by Tim Carter, Ball State University (tccarter@bsu.edu). The transmitter was checked prior to attachment and rechecked prior to releasing the bat, to ensure it was working properly.

Locating transmitters was attempted for up to two weeks following the release of the tagged bats. Unfortunately, 3 of the 9 transmitters were never relocated. One transmitter was only found after it had been dropped from the bat (approximately 2 weeks after original capture) and was not in a roost. The transmitters that were located were not located daily, though searches were conducted. Due to their small size, the transmitters have a limited range (0.25 – 0.5 miles) and limited life expectancy (14 – 21 days). Access to many potential roosting areas was difficult or near impossible at times. SCA Mangelinckx was able to locate two new roosts in the vicinity of an existing roost at the north end of Tupelo Trail.

Attaching a transmitter to a southeastern myotis. (From left to right) The hair between the shoulder blades is trimmed as short as possible (1), then cleaned with an alcohol swab (2). Glue is applied (3) and allowed to dry until tacky (4). The transmitter is put in place and the untrimmed hair surrounding the site is pulled over it (5). The signal is checked again to make sure it's functioning and the bat is ready to release (6). (E. Mangelinckx and B. Rosamond/USFWS)

Aquatic Inventory – Coldwater River NWR

Dr. A. Reza's Wildlife Techniques class visited Coldwater River NWR and checked minnow traps that had been set the day before. A total of 10 traps were placed in each of 4 units (units E, J, K, and PP) and baited with commercial crayfish bait. Table 9 below summarizes the captures.

Table 9: Summary of captures for trapping effort at Coldwater River NWR, March 30 – 31, 2012. A total of 10 minnow traps were set and left overnight (10 trap nights per pond), baited with commercial crayfish bait.

Species	Unit E	Unit J	Unit K	Unit PP
Insects (presence/absence)				
Dragonfly larva (Anisoptera)	X	X	X	
Water scorpion (Nepidae)	X			
Giant water bug (Belostomatidae)	X	X	X	
Predaceous diving beetle (Dytiscidae)	X	X	X	X
Crayfish				
Red-swamp crayfish, *Procambarus clarkii*	(3M,78F) 81	(1M,5F) 6		(1M,18F) 19
White river crayfish, *P. acutus*			1F	
Fish				
Golden shiner, *Notemigonus crysoleucas*				2
Pirate perch, *Aphredoderus sayanus*				1
Western mosquitofish, *Gambusia affinis*				2
Green sunfish, *Lepomis cyanellus*				8
Warmouth, *L. gulosus*				1
Bantam sunfish, *L. symmetricus*				1
Amphibians				
Ranid tadpoles (likely *Lithobates sphenocephala*)	99	31	176	
Western lesser siren, *Siren intermedia nettingi*		2		
Central newt, *Notophthalmus viridescens*		(1 M, 1 F) 2		
Reptiles				
Broad-banded water snake, *Nerodia fasciata confluens*		1		
Diamond-backed water snake, *N. r. rhombifer*				1

Coldwater River NWR. From left to right (top): checking minnow traps, male (l) and female (r) red swamp crayfish, pirate perch, western lesser sirens, (bottom) central newts, broad-banded water snake, diamond-backed water snake. (A.Reza/Delta State University)

Aquatic inventory – Tallahatchie

WB Rosamond, RM Kristofik, BT George, STEP Coleman, and SCA Intern's Jeanette Bailey and Ellie Mangelinckx conducted an aquatic inventory of Tallahatchie NWR October 31, 2011 – August 1, 2012. The goal of the project was to develop a species list of mussels, crayfish, fish, and amphibians for the refuge. The project was conducted in conjunction with the Private John Allen National Fish Hatchery (PJANFH) and the U.S. Forest Service Southern Research Station (SRS) in Oxford, Mississippi.

Staff from PJANFH primarily sampled Tippo Bayou and Long Branch, using gill nets, electrofishing, and area searches (for mussels). Staff from NMRC sampled seven wetland areas with various degrees of separation from Tippo Bayou. Sites were primarily cypress/tupelo swamps, but also included a moist soil management unit, and two sites that were overflow areas from permanently flooded units. These areas were sampled using minnow traps baited with commercial crayfish bait, dip nets and area searches. All mussel, crayfish, and minnow identifications were confirmed by aquatic ecologists with SRS.

A total of 9 mussel species, 5 crayfish species, 41 fish species, 12 amphibian species, and 12 reptile species were captured or otherwise recorded. Of these species, 17 species of fish were found only within Tippo Bayou and Long Branch. Table 10 summarizes species recorded at Tallahatchie during this survey.

Vernal pool inventory – Dahomey

BT George sampled aquatic habitats on Dahomey NWR from January 30 – June 1 for crayfish, fish, amphibians, and reptiles. A total of 20 sites were initially chosen for sampling, with eight sites added later, as original sites dried. Initial site selection was based on water distribution from the previous year, logistical considerations, and ground-truthing to insure areas were flooded sufficiently. The 20 original sites were characterized on January 18 – 24, 2012, and water chemistry parameters were measured during each sampling period. Pools were marked at their approximate center with a flag and measurements were taken at that point, when possible.

At each site, 20 minnow traps were set at the beginning of the week and baited with commercial crayfish bait. Traps were checked daily and were removed at the end of the week. Traps were placed near existing structures, such as against a log, near vegetation, or in a depression, to maximize the possibility of captures. As the water receded, the number of traps set at each site was reduced, with five as the minimum number of traps set at a site. Trapping continued until the water became too shallow to use the minnow traps. Sites were sampled a total of 2,820 trap nights (1 trap night = 1 trap set for 24 hours). In addition to trapping, water chemistry information was collected and a time-constrained search using dip nets was conducted at each site during each sampling period.

All individuals captured were identified to genus and most were identified to species. Where possible, individuals were sexed and assigned an age class (juvenile or adult), and total number of individuals was recorded. All amphibians and reptiles were then released near the point of capture. Crayfish were identified in the field and preserved in 70% ethanol. Captured fish were preserved in 5% formalin. All crayfish and fish samples were sent to the U.S. Forest Service,

Southern Research Station, in Oxford, Mississippi to have the identification verified. Beginning April 17, crayfish that could be confidently identified in the field were processed and released near the point of capture. Additional reptile and amphibian species were detected through chance encounters and call recognition (frogs).

A total of 6 crayfish species, 16 fish species, 12 amphibian species, and 12 reptile species were captured or otherwise recorded. Table 10 below summarizes species recorded at Dahomey during this survey.

Table 10: Species captured on Dahomey and Tallahatchie NWR's during inventory projects in FY 2012.

Mussels	Dahomey NWR	Tallahatchie NWR
Flat floater, *Anodonta suborbiculata*	not sampled	X
Yellow sandshell, *Lampsilis teres*		X
Fragile papershell, *Leptodea fragilis*		X
Pondmussel, *Ligumia subrostrata*		X
Giant floater, *Pyganodon grandis*		X
Mapleleaf, *Quadrula* sp.		X
Texas lilliput, *Toxolasma texasense*		X
Paper pondshell, *Utterbackia imbecillus*		X
Fingernail clam		X
Crayfish		
Cajun dwarf crayfish, *Cambarellus shufeldtii*		X
Swamp dwarf crayfish, *C. puer*	X	
Devil crayfish, *Cambarus diogenes*		X
Digger crayfish, *Fallicambarus fodiens*	X	
Shrimp crayfish, *Orconectes lancifer*		X
Grey-speckled crayfish, *O. palmeri*	X	
White River crayfish, *Procambarus acutus*	X	X
Red swamp crayfish, *P. clarkii*	X	X
Vernal crayfish, *P. viaeviridis*	X	
Fish		
Paddlefish, *Polyodon spathula*		X
Spotted gar, *Lepisosteus oculatus*		X
Longnose gar, *L. osseus*		X
Shortnose gar, *L. platostomus*		X
Bowfin, *Amia calva*	X	X
Gizzard shad, *Dorosoma cepedianum*		X
Threadfin shad, *D. petenense*		X
Blacktail shiner, *Cyprinella venusta*	X	
Common carp, *Cyprinus carpio*		X
Silver carp, *Hypophthalmichthys molitrix*		X
Redfin shiner, *Lythrurus umbratilis*	X	
Golden shiner, *Notemigonus crysoleucas*	X	X
Bullhead minnow, *Pimephales vigilax*	X	

River carpsucker, *Carpiodes carpio*		X
Lake chubsucker, *Erimyzon sucetta*		X
Smallmouth buffalo, *Ictiobus bubalus*		X
Bigmouth buffalo, *I. cyprinellus*		X
Black bullhead, *Ameiurus melas*		X
Yellow bullhead, *Ameiurus natalis*	X	
Blue catfish, *Ictalurus furcatus*		X
Channel catfish, *I. punctatus*		X
Tadpole madtom, *Noturus gyrinus*	X	
Flathead catfish, *Pylodictis olivaris*		X
Redfin pickerel, *Esox americanus*		X
Pirate perch, *Aphredoderus sayanus*	X	X
Golden topminnow, *Fundulus chrysotus*	X	X
Northern starhead topminnow, *F. d. dispar*		X
Black-spotted topminnow, *F. olivaceus*		X
Western mosquitofish, *Gambusia affinis*	X	X
Inland silverside, *Labidesthes beryllina*		X
Banded pygmy sunfish, *Elassoma zonatum*		X
Flier, *Centrarchus macropterus*		X
Green sunfish, *Lepomis cyanellus*	X	X
Warmouth, *L. gulosus*	X	X
Orange-spotted sunfish, *L. humilis*	X	X
Bluegill, *L. macrochirus*	X	X
Dollar sunfish, *L. marginatus*		X
Longear sunfish, *L. megalotis*	X	X
Redear sunfish, *L. microlophus*		X
Bantam sunfish, *L. symetricus*	X	X
Largemouth bass, *Micropterus salmoides*		X
White crappie, *Poxomis annularis*		X
Black crappie, *P. nigromaculatus*		X
Swamp darter, *Etheostoma fusiforme*		X
Slough darter, *E. gracile*		X
Freshwater drum, *Aplodinotus grunniens*		X
Amphibians		
American toad, *Bufo americanus*		X
Fowler's toad, *B. fowleri*		X
Cricketfrog species, *Acris* sp.	X	X
Green treefrog, *Hyla cinerea*	X	X
Gray treefrog species, *H. chrysoscelis/versicolor*		X
Spring peeper, *Pseudacris crucifer*	X	
Bullfrog, *Lithobates catesbeiana*	X	X
Bronze frog, *L. clamitans*	X	X
Pickerel frog, *L. palustris*	X	X
Southern leopard frog, *L. sphenocephala*	X	X
Ranid tadpoles	X	X

Mole salamander, *Ambystoma talpoideum*	X	
Marbled salamander, *A. opacum*	X	
Three-toed amphiuma, *Amphiuma tridactylum*	X	X
Central newt, *Notophthalmus viridescens*	X	X
Lesser siren, *Siren intermedia*	X	X
Reptiles		
American alligator, *Alligator mississipiensis*		X
Common mud turtle, *Kinosternon subrubrum*	X	
Common musk turtle, *Sternotherus odoratus*		X
3-toed box turtle, *Terrapene carolina triunguis*	X	
Red eared slider, *Trachemys scripta elegans*	X	X
Ground skink, *Scincella lateralis*	X	
Skink species, *Eumeces* sp.		X
Western mud snake, *Farancia abacura*	X	
Mississippi green water snake, *Nerodia cyclopion*		X
Diamondback water snake, *N. r. rhombifer*	X	X
Yellowbelly water snake, *N. erythrogaster flavigaster*	X	X
Broad-banded water snake, *N. fasciata confluens*	X	X
Graham's crayfish snake, *Regina grahamii*		X
Western ribbon snake, *Thmanophis p. proximus*	X	X
Eastern garter snake, *Thamnophis sirtalis*	X	
Rough green snake, *Opheodrys aestivus*	X	X
Cottonmouth, *Agkistrodon piscivorus*	X	X

Vernal pool inventory at Dahomey NWR (from left to right): grey-speckled crayfish, vernal crayfish, juvenile crayfish on fingertip, bowfin, marbled salamander metamorph, and cottonmouth. (R. George/USFWS)

Aquatic inventory at Tallahatchie NWR (from left to right): Jeannette and Rachel conducting dip-net surveys, Becky and Isaac examining crayfish, set minnow trap, shrimp crayfish, devil crayfish, golden topminnow, redfin pickerel, gray treefrog, green treefrog, and ground skink. (J. Bailey, R. George, E. Kristofik, and B. Rosamond/USFWS)

Calling frog survey

WB Rosamond conducted frog surveys on Coldwater River, Dahomey, and Tallahatchie NWR's following the protocol established by the North American Amphibian Monitoring Program (NAAMP). Additionally, she conducted surveys along one state route, following the same protocol. Three surveys were conducted on each route, corresponding to different calling periods (early spring, late spring/early summer, summer). Table 11 below summarizes the results of these surveys.

Table 11: Species detected during calling frog surveys on Coldwater River and Tallahatchie NWR's and the Zilpha Creek state route.

Species	**Coldwater River NWR**	**Dahomey NWR**	**Tallahatchie NWR**	**Zilpha Creek (state route)**
Bullfrog	X	X	X	X
Bronze frog	X	X	X	X
So. leopard frog	X	X	X	X
Pickerel frog	X			
Green treefrog	X	X	X	X
Gray treefrog complex	X	X	X	X
Bird-voiced treefrog				X
Spring peeper	X	X	X	X
Northern cricketfrog	X	X	X	
Cricketfrog complex		X	X	X
Fowler's toad	X	X	X	X
Narrowmouth toad		X	X	

Deer photo survey

Following protocols obtained from MDWFP Deer Biologist Lann Wilf, STEP Coleman conducted a deer photo survey in an attempt to get an estimated population of deer on Dahomey NWR. He pre-baited 10 sites on the Refuge, then set cameras which he ran for two weeks during July. Unfortunately, he captured very few images of deer. Although this protocol is frequently used successfully on private lands, it often does not work on public lands (L. Wilf, pers.comm.). During a later visit by DB Wilf to Dahomey, he mentioned that although it appeared we had a low density of deer on the Refuge, the population was likely at or near carrying capacity.

Bullfrogs on a boot, Tallahatchie NWR (J. Bailey/USFWS)

1b. Studies and Investigations

The North Mississippi Refuges Complex formed partnerships with state agencies, universities, and other organizations to aid in conducting studies and investigations on Refuge properties. The following are some significant activities that took place in 2012.

Dr. Ted Leininger, a researcher from the Southern Research Station, Center for Bottomland Hardwoods Research (USDA, Forest Service) in Stoneville, collected spicebush fruits from Dahomey in the fall, for chemical ecology research. In collaboration with researchers from the Department of Pharmacognosy at the University of Mississippi, he is comparing the secondary plant chemistry of spicebush fruits to pondberry fruits.

Dr. Eric Blackwell and Dr. AHM Ali Reza worked with several students on a project at Dahomey attempting to document wild hog use on the refuge and the area surrounding the refuge. They trapped several hogs and placed ear tags with radio transmitters on a 200 lbs. sow and 50 lbs. boar and then released them. To date, they have been unable to locate the tagged hogs.

Dr. Tracy Hawkins, a researcher from the Southern Research Station, Center for Bottomland Hardwoods Research (USDA, Forest Service) in Starkville, began a long-term study investigating the dynamics of acorn production for bottomland red oak species. She will be collecting acorns from Dahomey and measuring such factors as productivity, predation, and variability of Nuttall and willow oaks over the next 10 or more years. Fall of 2012 was her first field season.

Jenna Hamlin, a graduate student from the University of Georgia, used copper iris samples collected from Dahomey to investigate range expansion and hybridization between the copper iris (*Iris fulva*) and zigzag iris (*I. brevicaulis*). This is a study in progress.

Dr. Nathan Schiff, a researcher from the Southern Research Station, Center for Bottomland Hardwoods Research (USDA, Forest Service) in Stoneville, collected insects for several studies from Dahomey . In the fall, he removed approximately 20 feet of a dead Southern Sugarberry *Celtis laevigata* infested with *Tremex columba* and *Megarhyssa macrurus lunator*. Specimens reared from the wood were used for genome sizing with Dr. Spencer Johnston and Sean Hanrahan at Texas A & M University and also for RNA sequencing as part of a project to determine phylogeny of Hymenoptera with Dr. Ralph Peters in Bonn, Germany. Schiff also collected numerous beetle specimens in a light trap, by hand, and using bottle traps (Nitidulidae, Cetoniinae) for a survey of beetle genome sizes with the same colleagues at Texas A & M. In November, Schiff collected specimens of *Panorpa nuptialis* (Scorpionfly) to determine the size of their salivary glands for a project with Dr. Wes Bicha from Oak Ridge, TN. Two research articles came out in 2012 that used specimens from Dahomey and there were three scientific presentations at Branch and National Entomological Society of America meetings. The two microbe presentations featured insects and microbes collected at Dahomey and were presented by Delta State University students. The invited talk at the Chemical Ecology of Cerambycid Beetles symposium featured specimens collected at Dahomey and included collaborators from Purdue University and U. C. Riverside.

Dr. Diane De Steven and Steven Hughes, researchers from the Southern Research Station, Center for Bottomland Hardwoods Research (USDA, Forest Service) in Stoneville, used Dahomey as one of their study sites to evaluate understory plant diversity in mature bottomland hardwood forests. The researchers sampled compartments 1 (area west of section 16 lease) and 3 (Stokes Bayou north, along Headquarters Road) in August and July, respectively. Data from this study will be used to compare understory plant diversity on restored WRP lands. Table 12 below summarizes species found by the researchers during this study.

Table 12: Species detected on Dahomey NWR in July and August during an understory plant diversity study conducted by Dr. Diane De Steven. (U – plant present in understory; O – plant present in overstory)

Species	Compartment 1	Compartment 3
Ambrosia trifida, giant ragweed	U	
Ampelopsis arborea, peppervine	U	
Aristolochia serpentaria, Virginia snakeroot	U	
Arundinaria gigantean, giant cane	O	
Asimina triloba, pawpaw	O	U
Berchemia scandens, Alabama supplejack	U	
Bignonia capreolata, crossvine	U	U
Boehmeria cylindrical, smallspike false nettle		U
Brunnichia ovate, redvine	U	
Campsis radicans, trumpet creeper	U	U
Carex cherokeensis, Cherokee sedge	U	
Carex crus-corvi, ravenfoot sedge	U	
Carex frankii, Frank's sedge	U	U
Carex tribuloides, blunt broom sedge	U	U
Carya aquatic, water hickory (bitter pecan)		O
Carya illinoinensis, pecan	O	
Celtis laevigata, sugarberry	U, O	U, O
Cersis canadensis, redbud		O
Cocculus carolinus, Carolina coralbead	U	
Cornus foemina (stricta), stiff dogwood	O	O
Crataegus viridis, green hawthorn		O
Dichanthelium commutatum, variable panicgrass	U	
Diospyros virginiana, common persimmon		U
Elymus virginicus, Virginia wildrye	U	
Erechtites hieracifolia, American burnweed	U	U
Fraxinus pennsylvanica, green ash	O	U, O
Geum canadense, white avens		U
Gleditsia tricanthos, honeylocust		U
Ilex decidua, possumhaw	U	O
Justicia ovata, looseflower water-willow	U	U
Lactuca floridana, woodland lettuce		U
Leersia lenticularis, catchfly grass	U	
Leersia virginica, whitegrass		U
Liquidambar styraciflua, sweetgum	O	

Lonicera japonica, Japanese honeysuckle	U	U
Ludwigia glandulosa, cylindricfruit primrose-willow		U
Morus rubra, red mulberry	U	
Parthenocissus quinquefolia, Virginia creeper	U	U
Polygonum virginianum, jumpseed	U	U
Quercus lyrata, overcup oak	O	O
Quercus michauxii, swamp chestnut oak	O	U
Quercus nigra, water oak	O	O
Quercus nuttallii (Q. texana), Texas red oak	O	U, O
Quercus pagoda, cherrybark oak	O	O
Quercus phellos, willow oak	U, O	U, O
Rubus trivialis, dewberry		U
Ruellia strepens, limestone wild petunia		U
Sanicula Canadensis, Canadian blacksnakeroot	U	
Smilax bona-nox, saw greenbrier	U	
Smilax rotundifolia, common greenbrier	U	U
Teucrium canadense, Canada germander		U
Toxicodendron radicans, eastern poison ivy	U	U
Trachelospermum difforme, climbing dogbane	U	U
Ulmus Americana, American elm	O	U, O
Ulmus crassifolia, cedar elm	U, O	U, O
Unknown moss species 2	U	
Unknown herb species	U	
Unknown Poaceae species (grass)	U	U
Vernonia gigantean, giant ironweed	U	
Viola species (violet)	U	
Vitis rotundifolia, muscadine	U	

* common names taken from PLANTS database www.plants.usda.gov

Giant ironweed, Dahomey NWR (B. Rosamond/USFWS)

Goldfinch on thistle, Dahomey NWR (B. Rosamond/USFWS)

2

Habitat Restoration

2a. Wetland restoration: On-refuge

A ditch plug/levee was constructed on Unit 20 at the Tallahatchie NWR in November by FOS Jones and EEO Roby. This levee will impound water north into Unit 48 for migratory birds.

EEO Roby repaired the levee and installed the WCS in Unit 26 on the Tallahatchie NWR in July.

FOS Jones and EEO Roby constructed a levee and installed a WCS in Unit 6 at the Dahomey NWR in November.

New wetland area at Dahomey NWR (unit 6). (H. Jones/USFWS)

2b. Upland restoration: On-refuge

Nothing to report

2c. Wetland restoration: Off-refuge

FOS Jones along with staff from the Private John Allen Fish Hatchery assisted the FWS Raleigh Field Office's Partners for Fish and Wildlife Program with a dam removal in Troy, North Carolina. The project's goal was to enhance Denson Creek's natural aquatic community by restoring the natural flow of the creek. FWS employees operated excavators to remove the nearly 70 year-old dam from Denson Creek. The complete demolition and removal of the six foot high, 83 foot wide dam and associated footings from the streambed took less than 4 hours according to Troy Mayor, Mr. Roy J. Maness.

Demolition of 6' x 83' dam and associated footings from Denson Creek, Troy, N.C. (H.Jones/USFWS)

Also see Section 5c., Private Lands Activities.

2d. Upland restoration: Off-refuge

See Section 5c., Private Lands Activities.

Hal Jones muds in a wcs on Tallahatchie NWR. (T. Carpenter/USFWS)

3

Habitat Management

3a and 3b. Manage water levels and moist soil units

On Coldwater River NWR, moist soil units were managed for over-wintering waterfowl, migrating shorebirds, and to control willow and other invasive species. Figure 10 shows the approximate drawdown schedule followed in 2012. Early drawdowns began March 7 for units B, D, E, G, M, T, and W and on April 20 for unit S. Late drawdowns began on or around May 18 for units C, F, I, J, U, and V and June 7 for unit A. Fall shorebird drawdowns were scheduled to occur on units H, K, L, and Q and begin in mid-July. However, by mid-July, most of these units were already dry.

Disking unit E at Coldwater River NWR. (T. Carpenter/USFWS)

Due to staff shortages, only unit E was disked, although several other units were slated for disking. After disking, unit E was kept dry for 2 weeks then reflooded in late August. Portions of units B, D, G, I, J, M, S, and U were mowed in late July/early August to control the worst of the coffeeweed and cocklebur, and to release grasses growing underneath.

Units N, P, and R dried during the course of the summer, due to drought conditions throughout the Mississippi delta. As a result, NMRC staff began pumping units at Coldwater on July 31, to ensure the presence of water when teal began arriving in late August/early September. By mid-September, the majority of the units were shallowly flooded.

The summer drought continued into the fall and several units had to be flooded a second time before the winter rains finally arrived in mid-December. Units relying on rainwater to fill (units M, N, and P) remained dry until December. As a result of early pumping and the lack of water elsewhere, Coldwater River NWR had good use by blue-winged teal during fall migration and high duck use through the early part of the season.

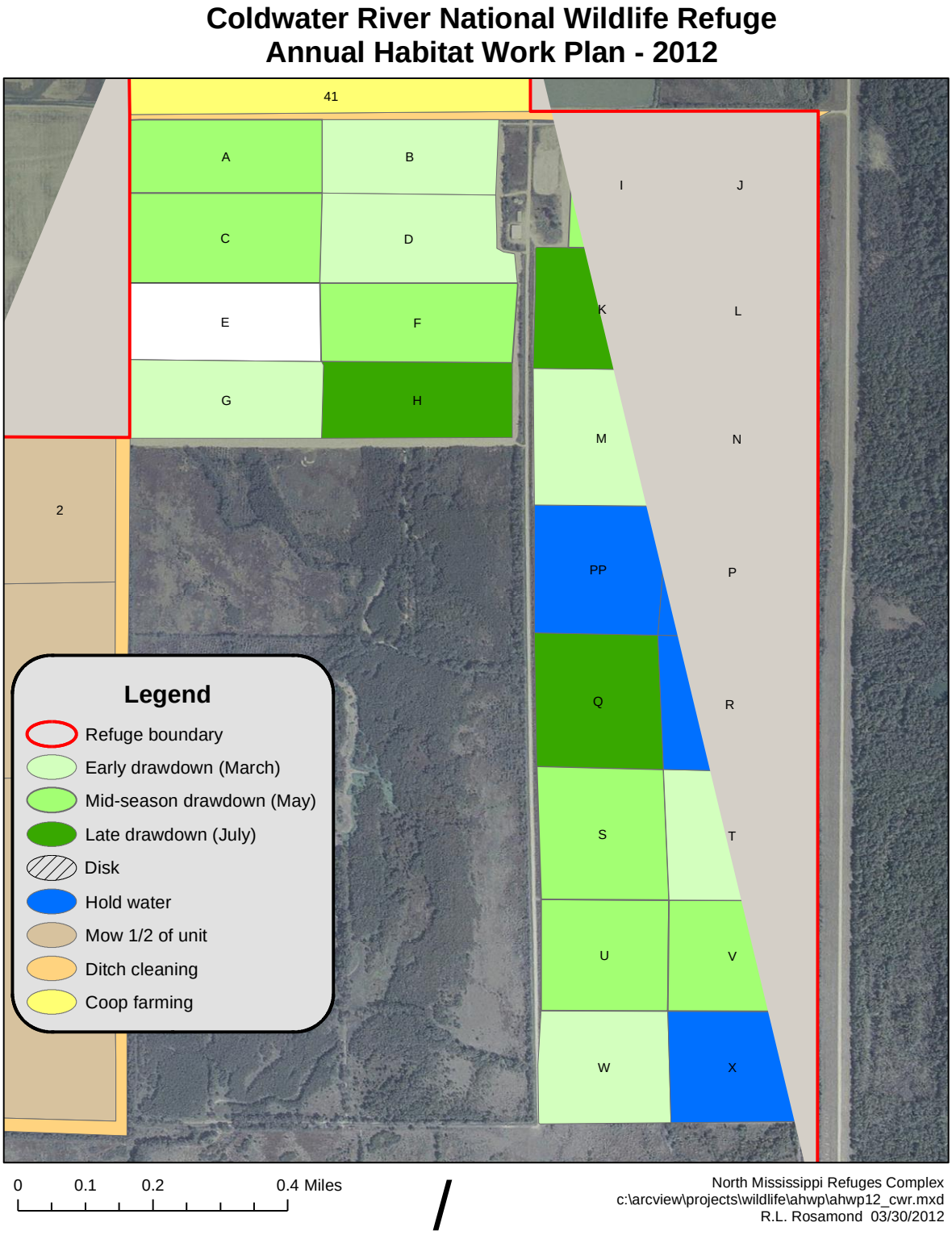


Figure 10: Annual habitat work plan for Coldwater River NWR

Moist soil units 9 – 12 at Dahomey were left fallow again this year to allow reworking the levees and creating a zero grade in the units. The four impoundments were converted to two impoundments and six WCS's were installed. Units were flooded in late August/early September. As a result of being fallow and the dirt work, a short, but abundant stand of millet and other grasses developed in those units. Fall migrating shorebirds and blue-winged teal found the units quickly, and shorebirds continued to use the units throughout the winter. Moist soil units 30 and 40 were cooperatively farmed again this year. The units were planted primarily in corn, although the northern end of unit 30 was planted in beans. The corn crop did not do well this year and, although the refuge share of 174 acres was left unharvested in strips in the floodable portions of both units, there was not an abundant amount of grain produced. These units were flooded beginning in November. Waterfowl response to the flooded corn was excellent, although it was difficult to observe the birds due to the vegetation in the units.

The green tree reservoir at Dahomey was not boarded the winter of 2011 – 2012. At the present time, the levee has a blow-out and needs to be repaired.

Dahomey NWR, reworking pond bottoms to zero grade on units 9 – 12 (left) and the finished product (right). (T. Carpenter/USFWS)

At Tallahatchie, unit 27 was drawn down beginning April 12. Unit 26 drained prior to this, when the levee blew out during the winter. Units 25 and 28 were allowed to dry naturally. All 4 units developed dense vegetation. Units were strip mowed to increase access by waterfowl then pumped beginning in mid-July. The units remained flooded through the remainder of the year, though water was added to several units during the late fall. Due to drought conditions and lack of water in the surrounding areas, these units were heavily used by waterfowl throughout the fall and winter.

Unit 101 (largest unit) on the Walker Tract was drawn down early and much of the western half was mowed in early May to set back succession. The unit was reflooded in October.

3c. Graze/mow/hay

For maintenance purposes, pond levees at Coldwater River NWR, Henson Tract, Walker Tract, and the levees around the moist soil units at Tallahatchie NWR (units 25 – 28, 30, 31) were

mowed periodically throughout the summer. Additionally, maintenance mowing on Tallahatchie NWR and the FSA tracts open to small game hunting was completed in October. EEO Roby completed roadside and boundary mowing on Dahomey NWR in September in preparation for hunting.

No haying or grazing occurred on the Complex in 2012.

3d. Farming

Farming occurred on Coldwater River, Dahomey, and Tallahatchie in 2012. Total acreage farmed included 260 acres on Coldwater River, 496 acres on Dahomey, and 568 acres on Tallahatchie. The cooperative farm program on the Complex requires the farmer to leave 25 - 35% of all crops planted in the field for the benefit of trust species. Table 13 shows the acreage of each crop planted by refuge, and the refuge share.

The NMRC decided not to Cooperative Farm on the Refuges in 2013 due to staff shortages.

Table 13**:** Acreage farmed and crops produced by cooperative farmers in 2012.

Co-op Farmer	**Refuge**	**Acres/Crop**	**Refuge Share**
Mixon	Coldwater River	201/milo	65 acres left in field
Mixon	Coldwater River	59/soybeans	Share of milo left in field
Strider	Tallahatchie	426/soybeans	Share of milo left in field
Strider	Tallahatchie	142/milo	100% left in field
Aylward	Dahomey	174/corn	100% left in field
Aylward	Dahomey	323/soybeans	Share of corn left in field

Crops grown on Tallahatchie in 2012 included soybeans and milo with 100% of the milo planted left as refuge share and 100% of the soybeans harvested. Corn was not planted, in part due to the threat of Aflatoxin, which has been present in the last several years' corn crop. On Coldwater River, milo and soybeans were planted and the farmer left 65 acres of milo standing as the refuge share. On Dahomey, corn and soybeans were grown on the refuge. The refuge's share (35% of the total acreage farmed) was approximately 174 acres of corn left standing in units 30 and 40 (the Ducks Unlimited impoundments). On the refuges, the cooperative farm program continues to be used to provide agricultural crops as food for wintering migratory waterfowl.

Ducks flushing from flooded milo on Tallahatchie NWR, January 2013. (H. Jones/USFWS)

3e. Forest Cutting

No forest cutting occurred on NMRC lands in 2012.

3f. Prescribed burning

NMRC did not conduct any prescribed burning in 2012. At the present time, NMRC has no employees qualified to work prescribed fire.

3g. Control pest plants

Several species of invasive plants were present on refuge lands in 2012. These include chinaberry (*Melia azadarach*), parrot feather (*Myriophyllum aquaticum*), and alligator weed (*Alternanthera philoxeroides*). However, due to staff availability, no invasive plants were treated. These species need to be revisited in 2013 and treated as necessary.

Deer on levee at Coldwater River NWR after early morning swim. (H. Jones/USFWS)

4

Fish and Wildlife Management

4a. Bird banding

During the summer of 2012, WB Rosamond, RM Kristofik, STEP Coleman, and SCA Mangelinckx trapped wood ducks at Coldwater River NWR using swim-in traps. Sites were pre-baited and monitored with game cameras until wood ducks found the site. Only one site held water and attracted wood ducks and the game cameras allowed staff to monitor when they used the site. Once ducks began using the site consistently, a swim-in trap was set up on location. The trap was set at approximately 5 a.m. and checked at approximately 8:00 a.m. to reduce the possibility of predation. Table 14 below summarizes the results of these efforts. This trapping was conducted in an effort to meet the pre-season banding goals for the Complex.

Table 14: Sex and age of wood ducks banded at Coldwater River NWR in 2012.

Date	Location	Adult male	Adult female	Immature male	Immature female	Total
8/2/2012	Unit H	3	3	9	5	20
8/8/2012	Unit H	1	0	1	5	7
Totals		**4**	**3**	**10**	**10**	**27**

Wood duck banding at Coldwater River NWR: Attaching the bands (left). Banded and ready to go (right). (B. Rosamond/USFWS)

4b. Disease monitoring and treatment

On January 4, 2012, WB Rosamond received a report of an 11 point buck on Tallahatchie that was behaving abnormally. It was staying close to Mabus Road and only moving off slowly when disturbed. WB Rosamond and FOS Jones investigated and determined the deer was sick and likely unable to eat or drink. The deer was euthanized. A later necropsy revealed the deer

had a large abscess around its jaw. Later investigation by FWO Murphy revealed that the deer had been shot in the head with small game shot.

On December 19, 2012, a hunter at Dahomey NWR contacted WB Rosamond regarding a deer he had shot that looked emaciated. He was concerned the deer could have been infected with Chronic Wasting Disease. EEO Roby retrieved the carcass from the hunter and brought it to the Grenada headquarters. WB Rosamond worked with MDWFP Deer Biologist Lann Wilf to necropsy the deer. Samples were sent to the Southeastern Cooperative Wildlife Disease Study Lab for testing and ruled out both Chronic Wasting Disease and Hemorrhagic Fever. DB Wilf believed the deer had been injured earlier during the hunting season and was suffering from a secondary infection. An abscess was found during the necropsy near his sternum.

4c. Reintroductions

Nothing to report.

4d. Provide nest structures

WB Rosamond and RM Kristofik prepped all boxes prior to March. Monitoring was sporadic on all boxes, and many boxes at Dahomey and on the Gillion Tract were only visited during the initial cleaning and prepping. In general, predation of boxes is fairly high, particularly on Dahomey, Tallahatchie, and Walker. It appears that most predation is by rat snakes with occasional predation by woodpeckers (especially at Tallahatchie along the boardwalk). Although boxes are equipped with predator guards, many of the snakes in these areas are quite large and are able to get around the guards. Currently, 64 boxes are present on Coldwater River, Dahomey, Tallahatchie, Gillon, and the Walker Tract. Due to inconsistent monitoring during 2012, data were not summarized. In addition to wood ducks, the nest boxes were also used by screech owls, hooded mergansers, a tufted titmouse, and Carolina wrens.

Tallahatchie NWR, pipping (left) and hatching wood duck eggs. (B. Rosamond/USFWS)

4e. Predator and exotic control

Feral hogs continue to be a problem on refuge lands, particularly Dahomey, Tallahatchie, the Walker Tract, and many of the FmHA properties. Hogs are extremely destructive to wildlife

habitat, and also cause damage to levees, roads, and crops. Additionally, wild hogs may be infected with brucellosis, an infectious disease caused by bacteria which can be transmitted to humans and other species of wildlife.

The shooting of feral hogs by permitted hunters during open hunting seasons is strongly encouraged. In 2012, the refuge staff conducted a special hunt on Saturdays and Sundays during the month of February on Dahomey NWR which resulted in approximately 29 hogs killed. Additionally, during the squirrel and deer hunting seasons, 50 hogs were killed on Dahomey. On Tallahatchie, FOS Jones, FWO Murphy, EEO Roby, STEP Coleman, SCA Mangelinckx, and WB Rosamond made multiple captures totaling 35 hogs killed in a corral trap on Perkins Ridge and 9 hogs killed in a corral trap on the Walker Tract.

Project Leader Gard and DPL Carpenter continue to work with the Mississippi Department of Agriculture, Wildlife Services (USDA), the Extension Service, and private landowners as part of the Wild Hog Task Force geared to addressing the issues of managing wild hogs in Mississippi. The Complex loaned several landowners with farms adjacent to Dahomey traps to catch hogs on their properties. These traps are available to loan out to any adjacent landowner outside of hunting season.

Nutria are present on the refuges but their numbers appear to have decreased over the last few years. When present in large numbers, they damage the levees and feed in the moist soil units. No nutria were removed during 2012.

Beaver are common on NMRC properties and interfere with wildlife management activities by plugging culverts, ditches, and water control structures. During the spring and summer of 2012, NMRC staff cleared beaver debris from numerous water control structures and cleared beaver dams from streams and ditches to release ponded water. One Special Use Permit was issued to adjacent landowners for beaver dam removal on NMRC properties and easements (Goss FSA). Summer droughts the last two summers have helped reduce the impacts of beavers on refuge lands.

Tallahatchie NWR: Hogs in a corral trap captured on a trail cam (left). Hog damage along refuge road (right) (H. Jones/USFWS)

5

Coordination Activities

5a. Interagency coordination

- The new Terrestrial Ecologist for the Inventory and Monitoring Branch of the Service has been located at the NMRC. David Richardson was selected for the position and works out of the Grenada office.

Inventory and Monitoring Branch Terrestrial Ecologist David Richardson (T. Carpenter/USFWS)

- NMRC staff worked with NRCS in their annual Arbor Day tree giveaway. The Complex provided the trees which were distributed to the public by NRCS and refuge staff. The event was held at the NMRC headquarters this year.

- The NMRC Headquarters conference room was used as a meeting site for a number of groups, including: the MDWFP biologists, the Grenada Chamber of Commerce, the Envirothon planning committee, NRCS Teacher Workshops, and Civil Defense.

- NMRC hosted the annual Hunt Coordination meeting. Attendees included representatives from all National Wildlife Refuges in Mississippi, Army Corps of Engineers, U.S. Forest Service, and Mississippi Department of Wildlife, Fisheries, and Parks. This meeting provides a forum for the State to communicate any changes to the upcoming hunting season and Federal landowners to provide their proposed regulation to State officials.

- WB Rosamond attended the Atlantic Flyway Wingbee in Laurel, Md. During the course of the week, approximately 17,000 waterfowl parts were examined and evaluated.

- DPL Carpenter attended the Mississippi Wild Hog Task Force meeting in Jackson, MS.

- PL Gard, DPL Carpenter and ZO Coffman met with MDWFP to discuss an inter-agency MOU for radio communications on the new MSWIN network.

5b. Private land activities

The Regional Office made the decision not to fill the private lands biologist position when it became vacant in February 2009. North MS Refuges Complex still receives numerous calls about potential partners for fish and wildlife projects, but without staff and funding, the majority of these calls are sent to the Jackson ES office. Two projects were completed in FY12 by NMRC staff. Table 15 summarizes the annual accomplishments on private lands for 2012.

Table 15 . Summary of Fiscal Year 2012 Accomplishments for the Private Lands Program.

Project Name	**Program**	**Wetland (ac)**	**Upland (ac)**	**Total Acres**
Bristow Project	PFW	10	0	10
Griffin Project	PFW	60	0	60
Totals		70		70

Wetland created for the Bristow Partners Project. (H. Jones/USFWS)

c. Tribal coordination

Nothing to report

5d. Oil and gas activities

Nothing to report

5e. Cooperative/Friends Organizations

The Friends of Dahomey National Wildlife Refuge Inc. continued to be a strong partner for the refuge. They assisted the refuge by hands-on volunteering, providing support through outreach, and funding projects through grants. 2012 Highlights include:

- The Friends group joined the Cleveland Chamber of Commerce and now hold their monthly meetings in the Chamber conference room.

- The group sponsored and participated in the annual Dahomey/Great River Road Christmas Bird Count. Several members also participated in the Washington County Christmas Bird Count.

- A Friends of Dahomey NWR Facebook page was established and the existing web site was updated.

- The group hosted students from Shaw, Eastside, and Cleveland High Schools for a day at the refuge. Friend Vice President Alan Barton coordinated activities led by other Friends members and refuge staff.

- Volunteers from the group continued to maintain the butterfly garden and the Herbert Nature Trail throughout the spring and summer.

- In April, the group set up a booth at the Crosstie Art and Jazz Festival in Cleveland, MS.

- In October, the group set up a booth at the Oktoberfest Festival in Cleveland, MS.

- Board member Dr. Ellen Green secured a grant for a Service learning project for undergraduate science majors that will allow the butterfly garden to be expanded.

- The group worked with WB Rosamond to develop a tearsheet for Dahomey which is available at the Cleveland Chamber of Commerce and other locations in the delta.

- Friends Larry Pace and Mark Bonta had a manuscript with photographs accepted by the University Press of Mississippi: *Guide to the Natural Areas of the Delta.*

- The Friends group hosted a farewell luncheon for RM Kristofik.

- The Friends group showed their support by attending a public meeting on the proposed boundary expansion of Dahomey NWR.

- Refuge staff held a luncheon to recognize the contributions of Friends board members and volunteers in May. All attendees were given refuge hats and water bottles. Additionally, Friends officers Dorothy Shawhan (President), Alan Barton (Vice President), Eric Blackwell (Secretary), and Weegie Walker (Treasurer) and photographer Larry Pace received books in recognition of their contribution to the refuge.

We bid farewell to Tom and Stella Wear, long-time Friends members, volunteers, and avid birders, as they moved out of the area this year to be closer to family. They will be sorely missed!

(L. Pace/Friends of Dahomey)

6

Resource Protection

6a. Law Enforcement

The NMRC has two collateral duty officers (PL Gard and DPL Carpenter) and one full-time officer (FWO David Murphy) that are responsible for Refuge law enforcement on the three Refuges and 127 FSA properties in 22 counties throughout northern Mississippi.

The Refuge System law enforcement program continues to make positive changes for the field. Refuge Officers positions were changed from GS-0025 Park Rangers to GL-1801 Federal Wildlife Officers (FWO). This is the standard law enforcement position title in OPM and was welcomed by the field. Washington also proposed a colored (gray) LE vehicle instead of the standard white.

FWO Murphy was very busy this year patrolling the NMRC, assisting OLE with several high priority cases, and working with MDWFP and the Holly Springs NF.

FWO Murphy transferred to the Tennessee NWR Complex on 12/16.

FWO Murphy with gift in-hand at his going away party. (H. Jones/USFWS)

The following are station highlights for 2012:

- The NMRC supplied targets for the Region 4 annual in-service training.
- PL Gard, DPL Carpenter, and FWO Murphy attended the annual LE in-service training in Jackson, MS in March 2012.
- NMRC hosted the Refuge Law Enforcement firearms re-qualification training on August 23rd. Twelve (12) FWOs and two (2) Special Agents (SA) from MS attended the

training. DPL Carpenter instructed the group on NWRS policy on use/carry of Electronic Control Devices (taser) for the Defensive Tactics section.

New armored shields were used at requalifications. (T. Carpenter/USFWS)

- NMRC completed installing and programming radios in the LE vehicles for the new MSWIN radio system. The system allows FWOs to talk state-wide and provides dispatch through the MDWFP in Jackson. The MOU with MSWIN included all MS/LA Refuges and the Office of Law Enforcement.

- DPL Carpenter and FWO Murphy assisted with LE at Noxubee NWR for their renaming event in August.

- FWO Murphy assisted the MDWFP, Yalobusha County Sheriff's Department and the US Forest Service with four deer decoy operations at the Holly Springs NF. The task group arrested a group of night hunters after shooting the decoy and fleeing the scene in their vehicle. The Yalobusha County SO arrested all three subjects and the US Forest Service is prosecuting them in federal court.

- PL Gard and DPL Carpenter attended a meeting in Atlanta to provide input for a new LE modeling program in November.

- FWO Murphy and Special Agent Chavis assisted the MDWFP new cadet class with Migratory Bird Treaty Act training for two days.

- Local law enforcement agencies utilized NMRC's small arms range for qualifications.

- PL Gard, DPL Carpenter and FWO Murphy assisted OLE with migratory bird enforcement on the opening weekend of dove season and teal season off-refuge. Several baiting cases, over limit, lead shot and license violations were cited by the task force.

Table 16: Law Enforcement Violations Reported by NMRC in 2012

CODE	VIOLATION DESCRIPTION	NUMBER OF VIOLATIONS
50 CFR § 32.2 (f) Failure to comply with special regulations regarding hunting.	No Refuge Permit Failure to display/deposit completed Harvest Data Card No hunter's fluorescent orange during a hunting season. Violation of state regulations regarding antler size. Failure to remove deer stand. Travel off designated trail.	3 7 4 1 1 1
50 CFR §32.2 (a)	Hunting on a NWR without the Required State License.	1
16 USC §718b	Hunt Migratory Waterfowl with Unsigned Duck Stamp	3
	TOTAL VIOLATIONS	21

Federal Wildlife Officers working security at the renaming event at Noxubee NWR. (USFWS)

6b. Wildfire preparedness

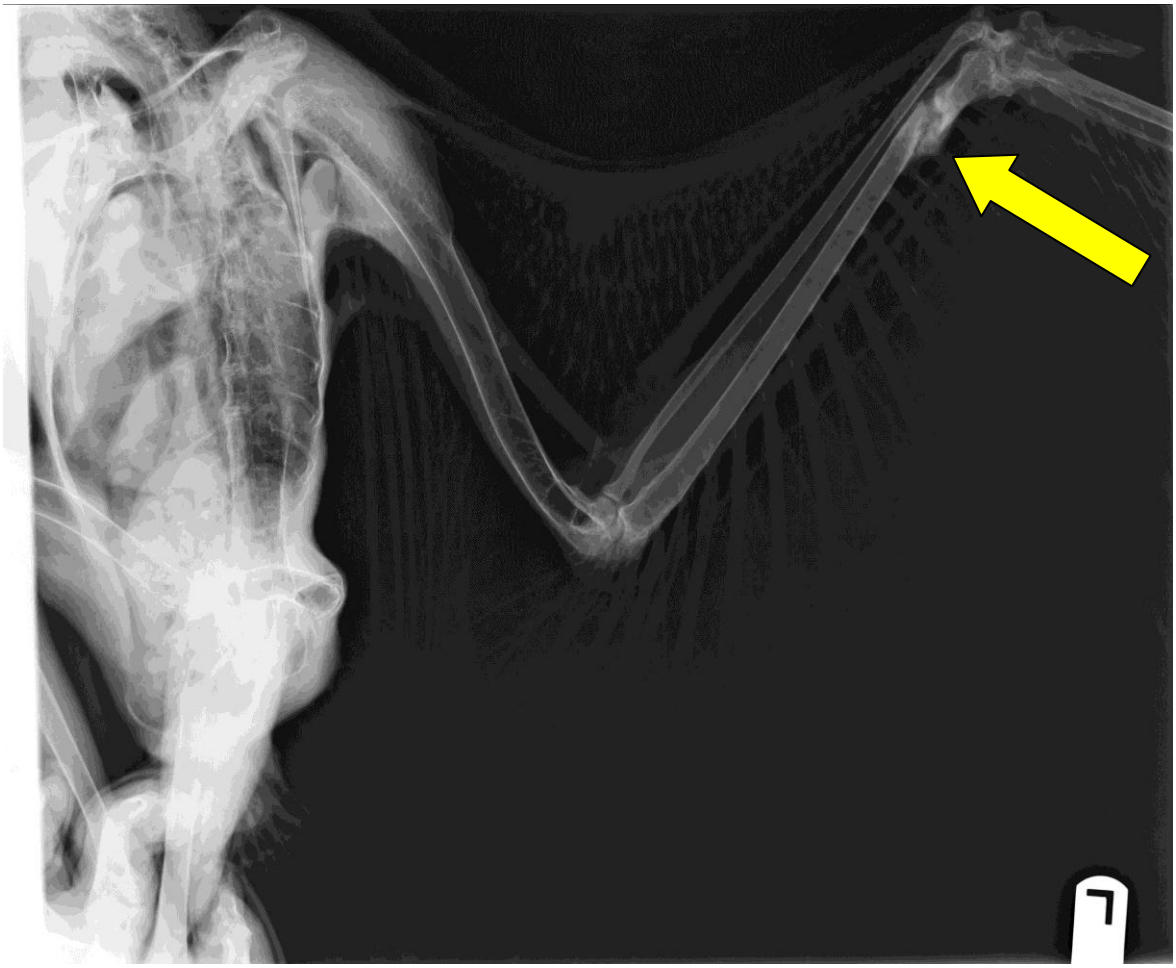
See section 3f.

6c. Manage permits and economic uses

Nothing to report

6d. Contaminant investigation and cleanup

Nothing to report



X-ray of a juvenile bald eagle's left wing showing a break in the ulna. Federal Law Enforcement Officers often work with local vets to determine causes of migratory bird injuries. (X-ray courtesy of Grenada Veterinarian Associates)

6e. Manage water rights

Nothing to report

6f. Manage cultural resources

Rick Kanaski from the Regional Office completed a site visit to the Pennington Tract in Tallahatchie County in December. He completed an archeological survey on the FSA tract as part of the transfer of the property for the NMRC headquarters office.

6g. Federal Facility Compliance Act

Nothing to report

6h. Land acquisition

The NMRC proposed to expand the current Dahomey National Wildlife Refuge's (NWR) land acquisition boundary to include an additional 46,000 acres to increase the effectiveness of the refuge as a fully functioning bottomland hardwood forest. The proposed expansion area is located west of the current refuge holdings. The lands within this proposal lie between the Dahomey NWR and the Mississippi River (Figure 11).

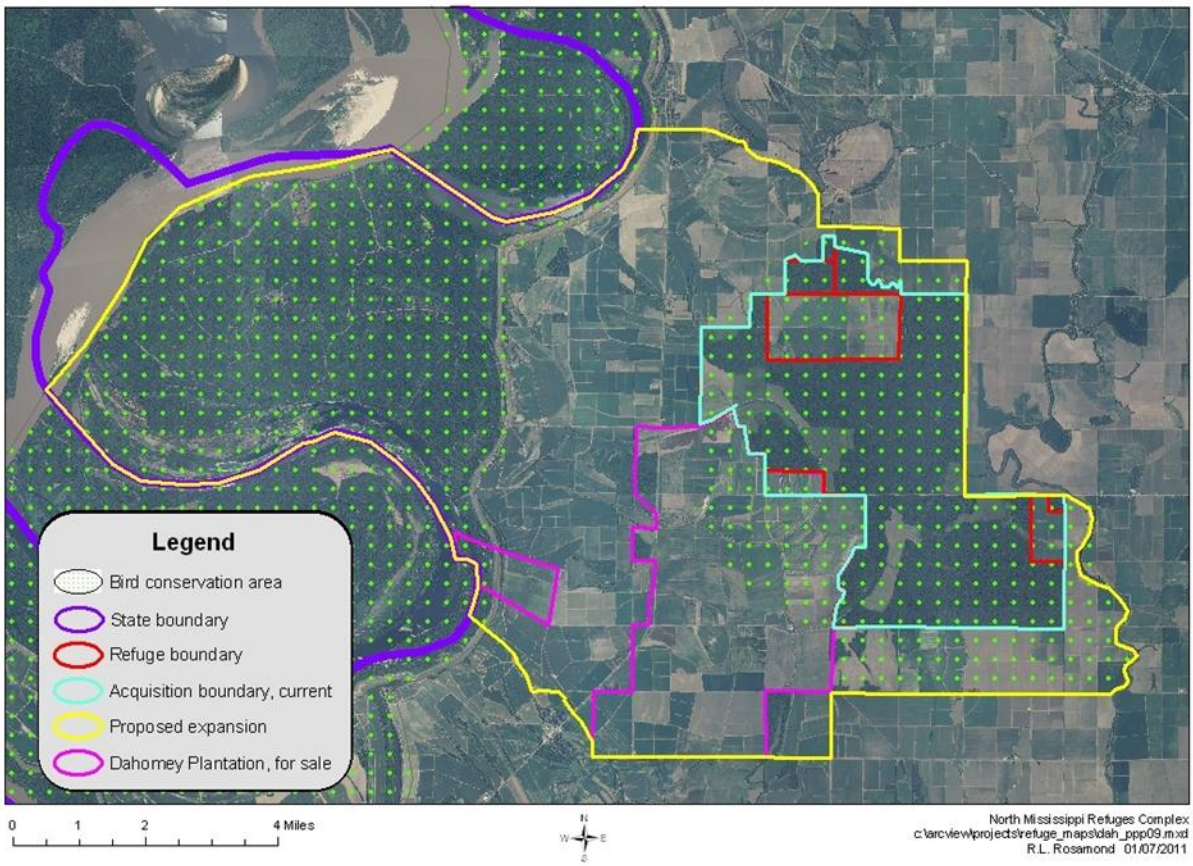


Figure 11: Map of proposed acquisition area for Dahomey National Wildlife Refuge.

The Service held two meetings for the Dahomey proposed land acquisition, one for the public and one for intergovernmental agencies. The meetings were held in May and June at the Kent Wyatt Hall, Delta State University and the Bolivar County Extension Office. The refuge staff did a brief welcome, presentation on Dahomey NWR and explanation of expansion process. Most of the comments and questions were focused on access to the main levee for the purpose of maintenance by the Mississippi Levee Board attendees and confirmation of willing sellers by the public.

The NMRC divested the Pennington FSA Tract (360 acre) for ownership of the Grenada Refuge office and approximately 3 acres of land. Environmental Assessments, National Environmental Policy Act requirements, Section 7 and Archeological surveys were completed for this project. The old airplane and camper on the Pennington Tract were removed by FOS Jones and EEO Roby before it was divested.

Removal of old airplane and camper from the Pennington Tract. (H. Jones/USFWS)

The Theodore Roosevelt (TR) NWR Complex acquired land from the divestiture of FSA tracts in Leflore County, MS. The Gwin Tract was transferred to a private individual in December. The Scott 80, Scott 90 and the Henson tracts are all part of this legislation to acquire land for the TR Complex. The Bill that was introduced into the House of Representatives stated the following: To provide for the consolidation of certain Federal land in the State of Mississippi through the disposal and acquisition of land for the Theodore Roosevelt National Wildlife Refuge and other national wildlife refuges and the Private John Allen Fish Hatchery in the State of Mississippi, and for other purposes.

6i. Wilderness and natural area

Nothing to report

6j. Threats and conflicts

Nothing to report

8

Public Education and Recreation

8a. Provide visitor services

- The 2012 – 2013 hunting and fishing regulations were updated to reflect changes to the hunting season. The NMRC office began selling permits September 1. Permits were only sold out of the NMRC office and cost increased to $15. This is the first increase in cost since the program's inception.

- Hunters continue to be the primary user group for the Complex. Table 17 below shows the harvest and hunter usage summaries for the 2011-2012 hunting season, as reported on harvest information cards. Refuge management decided to end the special hog hunt at Dahomey NWR after the 2012 hunt.

Table 17: Harvest and hunter usage summaries for the 2011 – 2012 hunting season.

Species	Coldwater	Dahomey	Tallahatchie	Total
Deer (Buck)	---	17	14	31
Deer (Doe)	---	18	28	46
Turkey	---	1	---	1
Wild Hog	---	79	1	80
Rabbit	---	10	73	83
Raccoon	---	14	0	14
Squirrel	---	582	19	601
Ducks	13	172	388	573
Hunter visits	28	2823	1100	3951

8b. Outreach

The staff of NMRC is devoted to going beyond the blue goose signs to provide outreach to the public. Highlights for 2012 include:

- WB Rosamond conducted a salamander program and hike at Strawberry Plains Audubon Center. Approximately 20 adults and high school students attended. The students wrote blogs about the program and posted information they had learned on-line.

- WB Rosamond conducted a bat program for the Winona Rotary club. Approximately 30 people attended.

- WB Rosamond and SCA Bailey conducted 4 programs on bird migration for Girl Scouts staying at Camp Cedar Point. A total of 96 girls attended.

- WB Rosamond attended NatureFest at the Mississippi Museum of Natural Science to promote the Jr. Duck Stamp Program.

- The Friends of Dahomey hosted students from local high schools at Dahomey. WB Rosamond, and Friends Alan Barton, Eric Blackwell, Bucky Brooks, Ellen Green, Larry Pace, A. Reza, Nathan Schmidt, Stella Wear, and Tom Wear led hikes and other programs for the students. Friends members Cheryl Line, Dorothy Shawhan and Weegie Walker served lunch, provided by Sonic of Cleveland. A total of approximately 80 students attended these programs.

- WB Rosamond conducted programs on frogs and insects to approximately 125 kindergarten students at Winona Elementary School.

- WB Rosamond conducted programs on frogs, bats, and the Jr. Duck Stamp Program for two teacher workshops, speaking to approximately 50 teachers.

- WB Rosamond conducted a program on bats at the Museum in the Mississippi Delta in Greenwood as part of their summer daycamp program.

- In August, WB Rosamond worked the Wildlife Expo to promote the Jr. Duck Stamp program.

- In September, DPL Carpenter, WB Rosamond, and SCA Mangelinckx staffed a booth at the annual Hummingbird Festival.

- DPL Carpenter gave presentations to the Kiwanas Club in Grenada and the Rotary Club in Batesville.

Several professors from Delta State University used Dahomey for classes and labs. Table 18 below reflects the number of visits, the number of students and the duration of the visit for classes during 2012.

Table 18: Summary of use of Dahomey by Delta State University classes during 2012.

Class	**No. Students**	**No. Visits**	**Duration (hours)**	**Total Visitor Hrs.**
Dendrology	8	3	2.5	60
Entomology (spring)	17	4	1.5	102
Ecology (spring)	28	1	2.5	70
Ecology (fall)	26	1	2.5	65
Intro. to Wildlife Mgmt	15	2	2	60
Wildlife Techniques	13	3	2	78
Mammalogy	15	2	2	60
Wildlife Habitat Mgmt	5	4	2	40
Wetland Ecology	8	3	3	72
Conservation Ecology	12	6	2	144
Materials and Methods	13	2	2	52
Total	**160**	**31**	**24**	**803**

Additionally, Coldwater River NWR hosted several sessions of the Ole Miss Ornithology class, led by Dr. Jason Hoeksema and Gene Knight. (12 students, 3 visits)

The year 2012 was designated as the "Summer of Paddling" by the Mississippi River Coalition. The North Mississippi Refuges Complex received additional funding to host several paddling events throughout the summer. RM Kristofik organized several half-day and one full day events designed to introduce participants to canoeing and kayaking and to the ecology of local wetlands. The final event was organized by WB Rosamond and corresponded with National Wildlife Refuge Week. A total of 91 individuals participated in the various events, including 23 children. These efforts were made possible through the support of the local kayaking group, who provided volunteers and technical expertise at every event.

Summer of Paddling Events: First row – Chakchiuma Swamp, second row – Long Branch (Tallahatchie NWR), third row – Yalobusha River, fourth row – Tippo Bayou (Tallahatchie NWR). (R. Whitfield; E. Kristofik/USFWS; B. Rosamond/USFWS)

9

Planning and Administration

9a. Comprehensive management planning

9b. General administration

Tables 19 to 21 summarize the budget allocations for the complex in fiscal year 2012.

Table 19: North Mississippi Refuges Complex funding for fiscal year 2011.

Program	Accounting Code	Allocated ($)
Refuge Operations	1261-0000	435,198
Vernal Pools Dahomey	1261-4LCC	10,396
Refuge Maintenance MMS/Salary	1262-0000	155,694
Annual Maintenance	1262-A4NM	134,363
Equipment Replace	1262-B4NM	16,670
Heavy Equipment Replacement	1262-H4NM	74,625
YCC	1262-Y4NM	8,792
Equipment Rental	1262-R4RL	8,700
Repair Damaged Seed Building	1262-4C51	55,000
Repair Pair Levee Coldwater	1262-4C12	345,000
Junior Duck Stamp	1233-0000	2,199
Visitor Services	1263-0000	179,814
STEP Student CPWN Grant	1263-Y4RO	12,300
Law Enforcement	1264-0000	98,518
ISP Reimbursement	1664-7002	1,860
Junior Duck Stamp	4524-0000	779
Private Lands	1121-04HR	28,000
Repair Roads Gravel Dahomey	8555-42DH	72,404
Coldwater Interp. Panel At Tower	8081-4017	8,000
Boardwalk Interpretive signs	8081-4018	9,000
TOTAL		1,657,312

Table 20: North Mississippi Refuges Complex special program funding for fiscal year 2012

Program	Accounting Code	Allocated ($)
Recycling	4557-0004	13,700
Rec Fee	8081-0000	90,033

Table 21: North Mississippi Refuges Complex funding levels and full time employees (FTE) since 1989

YEAR	FUNDING ($)	FTE
1989	209,400	2
1990	556,700	2
1991	575,600	3
1992	616,400	9
1993	651,400	10
1994	556,900	8
1995	515,300	9
1996	733,900	8
1997	762,860	8
1998	1,405,700	11
1999	1,405,700	13
2000	1,407,600	13
2001	1,025,900	12
2002	1,025,900	11
2003	1,812,800	10
2004	1,474,500	10
2005	1,780,800	10
2006	1,773,200	10
2007	1,773,200	10
2008	1,493,800	11
2009	1,655,300	8
2010	1,513,145	8
2011	1,627,716	8
2012	1,657,312	7

A butterfly wing floating on duckweed. (B. Rosamond/USFWS)

10

Additional Highlights

10a. Meetings and Training

The staff participated in numerous meetings and trainings throughout 2012.

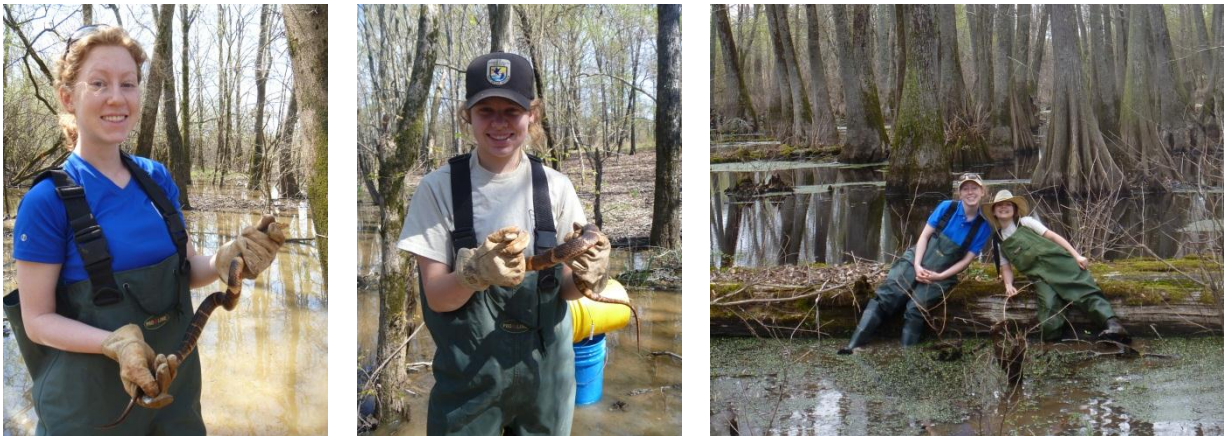
- AO Willis participated and graduated in a local leadership program.
- AO Willis attended a two day PRISM refresher course at the RO in Atlanta, GA
- AO Willis and DPL Carpenter attended FBMS budget tracking course at the Private John Allen Fish Hatchery in Tupelo.
- FOS Jones and PR/LE Murphy assisted with hosting two (2) ATV trainings at NMRC. This was part of the Regional Office guidance to get all Service employees retrained for ATV and UTVs.
- PL Gard, DPL Carpenter and ZO Coffman met with MDWFP to discuss inter-agency radio communications on the new MSWIN system. MDWFP signed the inter-agency agreement that allowed Service FWOs to run dispatch through the state.
- DPL Carpenter attended several meetings with MSWIN to finalize paperwork and MOUs to allow the Service on the radio network.
- WB Rosamond and RM Kristofik attended the annual Southeastern Bat Diversity Network meeting in Louisville, MS.
- WB Rosamond attended acoustical bat monitoring training at Tara Wildlife Center.
- WB Rosamond and RM Kristofik attended the annual meeting (Louisville, MS) and annual mistnetting event (De Soto National Forest, Laurel, MS) of the Mississippi Bat Working Group. STEP Coleman and SCA Mangelinckx also participated in the mistnetting event. WB Rosamond was elected to a second term as chair of the group.
- WB Rosamond participated in the meetings of the Bear Education and Restoration group of Mississippi. She currently serves as secretary for the group.

10b. Work Programs

The Youth Conservation Corps (YCC) was again a success. NMRC only had three YCCs for 2012. Hannah Adams, Christopher Davis, and Titus Benson worked at the headquarters office

in Grenada. Hannah assisted AO Willis with answering the phones, filing, selling permits, and other office tasks. Christopher and Titus maintained the shop and grounds, kept vehicles and equipment clean, and assisted the 1040's on several projects.

Student Conservation Association (SCA) interns Jeannette Bailey and Ellie Mangelinckx worked on various projects during their terms. SCA Bailey assisted AO Willis in the office several days a week. The remainder of her time was spent assisting with the biological program. Her primary duties with the biological program were assisting BT George with the vernal pool survey at Dahomey and assisting WB Rosamond with the aquatic inventory on Tallahatchie. She also participated in several bird surveys.



SCA Intern Jeannette Bailey, Term Biological Technician Rachel George and student volunteer Natalie Rosamond (showed with Jeannette) all participated in the Tallahatchie NWR aquatic inventory project. (USFWS)

SCA Mangelinckx assisted with the biological program in various capacities. She was a key member of the bat mistnetting and telemetry project and spent many hours in the field trying to locate bats with transmitters on them. Additionally, she assisted with hog baiting and trapping, water management activities, STEP Coleman's deer photo survey at Dahomey and several environmental education programs.

SCA Intern Ellie Mangelinckx enters a tree cavity to confirm the presence of a southeastern myotis located using radio telemetry. (B. Rosamond/USFWS)

10c. Equipment and Facilities

PL Gard, FOS Jones, EEOs Roby, Riales, Lea, and Leachman completed several additions and made some minor repairs to the boardwalk at Crystal River NWR in Florida in 2012. The boardwalk encompasses a new piece of property called the Three Sisters which was purchased by the Service to protect the Florida Manatee habitat and allow the public to view this endangered species.

EEO Leachman, Perry, Riales, and Roby assisted on a MAT (Maintenance Action Team) project at the Southwest Louisiana NWR Complex in August. The project included building and rehabilitating levees on moist soil impoundments at Lacassine NWR. NMRC took its transport truck with the JD 850 dozer to the two week detail.

A three phase electric line was constructed along Neblett Road at Dahomey NWR. The electric line is part of the DM project which also converted the Happy Hollow Lake well and Rice field well to electric.

Three-phase electric line installed along Neblett Road to provide electricity to Happy Hollow Lake and the rice field well. (T. Carpenter/USFWS)

NMRC completed a two year Refuge radio project in 2012. The new system replaced the two repeaters at Parchman and Grenada EOC and installed bases at Dahomey and the Grenada office. All vehicles and transport trucks were out-fitted with new radios. Integrated Communications was awarded the contract.

A rental fund project submitted by NMRC was selected to be completed in 2012 by the Regional Office. Robertson Tree Service was selected to clear 1.5 miles of brush and tree limbs from trails on the Trainor FSA tract (188 acre) in Quitman County.

The law enforcement/biological storage building at the NMRC received a new roof and insulation in 2012. The project has remaining funds to replace the doors, lighting and outlets in 2013.

A large two year Deferred Maintenance project was started at Coldwater River NWR in 2012. A ten thousand ton of clay/gravel contract was awarded to Townes Construction in Grenada to

rehabilitate the levees on the moist soil impoundments. The contract took several weeks to complete with over 400 loads of clay/gravel delivered. EEOs Riales, Lea, Perry, Leachman and Roby assisted on this project.


Levee work on Coldwater River NWR. (T. Carpenter/USFWS)

The following are significant equipment purchases that were made during 2012:

- Storage/Office Trailer
- Cheverolet Pickup Truck
- Cheverolet Pickup Truck
- 2011 JD 6430 Tractor
- 2012 Jeep Liberty




New purchases for 2012: storage/office trailer (upper left); Cheverolet pickup trucks (upper right); JD 6430 tractor (lower left); and Jeep Liberty (lower right). (H. Jones/USFWS)

10d. Other

- PL Gard participated in the Region 4 Mentoring Program as a mentor for the third year.
- PL Gard assisted as a supervisor and mentor for the Career Diversity Intern Program.
- PL Gard served as acting Project Leader for the Florida Keys NWR Complex for three weeks in December.
- WB Rosamond served as the state coordinator for the Mississippi Junior Duck Stamp program.
- WB Rosamond served on a team assembled to help with developing a programmatic Environmental Assessment on the use of Genetically Modified Crops on refuges in the southeast.

This travelling display was exhibited at various sites across the state to promote the Mississippi Junior Duck Stamp Program. (B. Rosamond/USFWS)

Staff Listing

During 2012, NMRC experienced the following personnel actions:

- Chris Lea, Carlton Leachman, Jimmy Perry, and Kevin Riales were re-appointed as 1040 Engineering Equipment Operators.

- Rachel George was hired as a Term Biological Technician to conduct the vernal pool inventory on Dahomey NWR.

- Isaac Coleman was hired as a STEP to assist with biological work.

- RM Kristofik transferred to Willapa NWR Complex in Washington as the Deputy Project Leader in August.

- FWO Murphy transferred to Tennessee NWR Complex in December.

North Mississippi Refuges Complex Staff: (left to right) Hal Jones, Don Roby, Travis Carpenter, Becky Rosamond, Bobbie Willis, Steve Gard. (D. Richardson/USFWS)

Table 22: Staff List for NMRC 2012

Permanent Full Time Employees	**Grade**	**EOD Date**	**Departure Date**
Stephen Gard Project Leader	GS-13	10/08/89	
Travis Carpenter Deputy Project Leader	GS-12	06/07/09	
Eva Kristofik Refuge Manager	GS-12	09/26/10	08/24/2012
Rebecca Rosamond Wildlife Biologist	GS-12	02/03/01	
Hal Jones Facilities Operations Specialist	GS-11	08/08/94	
Bobbie Willis Administrative Officer	GS-9	09/28/98	
David Murphy Federal Wildlife Officer	GL-9	08/30/09	12/16/2012
Don Roby Engineering Equipment Operator	WG-10	05/02/02	
Temporary Employees	**Grade**	**EOD Date**	**Departure Date**
Chris Lea Engineering Equipment Operator	WG-8	08/13/03	10/06/12
Carlton Leachman Engineering Equipment Operator	WG-8	05/15/05	10/06/12
Jimmy Perry Engineering Equipment Operator	WG-8	01/05/99	10/06/12
Kevin Riales Engineering Equipment Operator	WG-8	05/15/05	10/06/12
Rachel George, Biological Sciences Technician	GS-5	01/01/12	06/30/12
Isaac Coleman, Biological Aide	GS-3	04/08/12	08/03/12

Credits

Jeannette Bailey	Photos
Travis Carpenter	Section 2 and 6, 10b, 10c, Table 16, editing, photos
Steve Gard	Editing,
Rachel George	Photos
Hal Jones	Editing, photos
Eva Kristofik	Photos
Ellie Mangelinckx	Photos
Larry Pace	Photos
Becky Rosamond	Introduction, Section 1, 3, 4, 5, 8a, 8b, Figures 1-11, Tables 1-4, 6-15, 17 - 18, editing, photos
Robin Whitfield	Photos
Bobbie Willis	Sections 9b, 10b, 10d, Tables 19 - 22, photos

EEO Don Roby and JD 7400 Tractor with batwing mower. (T. Carpenter/USFWS)